Archives of

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(Formerly Archives of Physical Medicine)

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VOLUME XXXIV AUGUST, 1953 NO. 8

ANNUAL SESSION • CHICAGO • AUGUST 31-SEPTEMBER 4, 1953

American Congress of Physical Medicine and Rehabilitation

31st Annual

Scientific and Clinical Session

and

Instruction Seminar

August 31 through September 4, 1953

Official Headquarters

THE PALMER HOUSE

Chicago

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30 NORTH MICHIGAN AVENUE CHICAGO 2, ILLINOIS

INSTRUCTION SEMINAR

in conjunction with the

31st Annual Scientific and Clinical Session

American Congress of Physical Medicine and Rehabilitation

PALMER HOUSE — August 31, September 1, 2, 3, 4, 1953 — CHICAGO

SCHEDULE

MONDAY MORNING — AUGUST 31

(A) 9:00-9:50 A.M.
Pathological Physiology of Lesions of the Cervical Portion of the Spinal Cord and Brachial Plexus
Brown

(B) 10:00-10:50 A.M.
Pathological Physiology of Lesions of the Lower Spinal Cord and Lumbar and Sacral Plexus
Brown

MONDAY AFTERNOON — AUGUST 31

(C) 3:00-3:50 P.M.
Electromyography—Basic Physiology of the Motor Unit and Its Electrical Activity and Responses
Lambert

(D) 4:00-4:50 P.M.
Electromyography Clinical Techniques
Lambert

TUESDAY MORNING — SEPTEMBER 1

(E) 8:30-9:20 A.M.
Physiological Principles of Artificial Respiration
Kubicek

WEDNESDAY MORNING — SEPTEMBER 2

(F) 8:30-9:20 A.M.
Physiological Background for Neuromuscular Reeducation and Coordination
Knowlton

THURSDAY MORNING — SEPTEMBER 3

(G) 8:30-9:20 A.M.
Pathology of Trauma and Its Implications in Physical Treatment
Knapp

FRIDAY MORNING — SEPTEMBER 4

(H) 8:30-9:20 A.M.
Anatomy of the Cervical Portion of the Spinal Cord and Brachial Plexus
Hollinshead

MONDAY MORNING — AUGUST 31

Symposium on Cerebral Palsy

(1) 9:00-9:20 A.M.
Therapeutic Exercise for Athetosis and Spasticity
Perlstein

(1) 9:20-9:40 A.M.
Bracing for Athetosis and Spasticity
Allen

Discussion Period

(2) 10:00-10:20 A.M.
Neurosurgery in Cerebral Palsy
Fay

(2) 10:20-10:40 A.M.
Preschool Training of Cerebral Palsy
Gillette

Discussion Period

MONDAY AFTERNOON — AUGUST 31

(3) 3:00-3:50 P.M.
Principles of Muscle Reeducation
Bennett

(4) 4:00-4:50 P.M.
Methods of Application of Mass Movement and Facilitation Techniques for Therapeutic Exercise
Kabat

TUESDAY MORNING — SEPTEMBER 1

Symposium on Multiple Sclerosis

(5) 8:30-8:50 A.M.
Use of Drugs
Sweeney

(5) 8:50-9:10 A.M.
Rehabilitation Procedures and Aids
Gordon

Discussion Period

WEDNESDAY MORNING — SEPTEMBER 2

(6) 8:30-9:20 A.M.
Microthermy: Physiological Basis for Its Use, Indications and Dangers
Rae

THURSDAY MORNING — SEPTEMBER 3

(7) 8:30-9:20 A.M.
Classification, Diagnosis and Treatment of Myelopathies
Marks

FRIDAY MORNING — SEPTEMBER 4

(8) 8:30-9:20 A.M.
Complications of the Use of Hormones in the Treatment of Rheumatism
Polley

Note: The Committee on Education of the American Congress of Physical Medicine and Rehabilitation is in charge of the instruction seminar. It is purposely planned to limit the subjects in any year to a few topics in order to devote enough time to those subjects to give those attending a good review, both from the standpoint of basic knowledge and from the clinical standpoint. Certain groups of these subjects will be repeated every three to five years

Courses are offered in two separate groups: One group, designated by letters, consists of eight lectures on basic subjects. A second group of eight lectures, designated by numerals, will present more general and clinical subjects. Physicians as well as physical therapists who are registered with the American Registry of Physical Therapists will be permitted to register for these courses. Members in good standing of the American Occupational Therapy Association are also eligible to enroll for the instruction course.

The schedule of the seminar, as arranged, will permit attendance at both the course and scientific sessions.

Each registrant for the course is allowed the choice of one lecture during a period. The charge for the complete schedule of eight lectures is $15.00. Fewer than eight lectures may be scheduled at $2.00 per lecture. The right is reserved to reject any application if the Course Committee finds it desirable to do so. Registration for specific courses cannot be guaranteed when quotas are filled.

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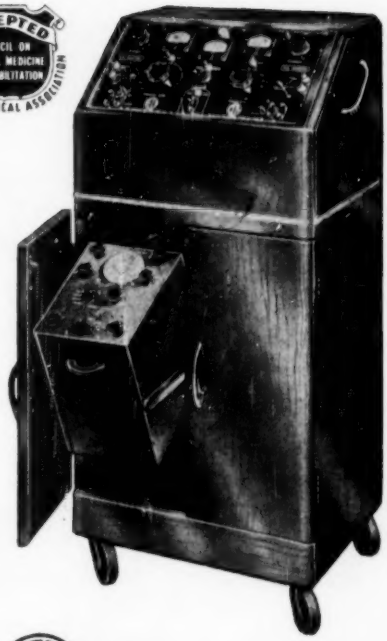

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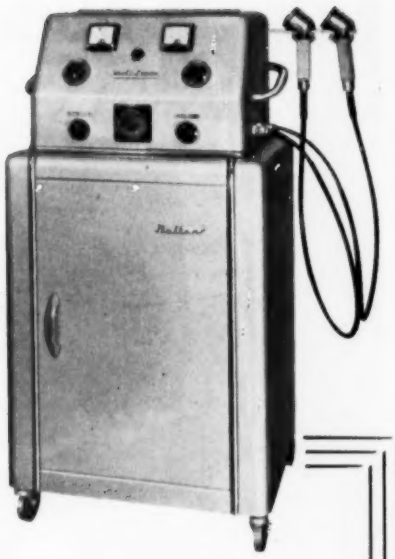

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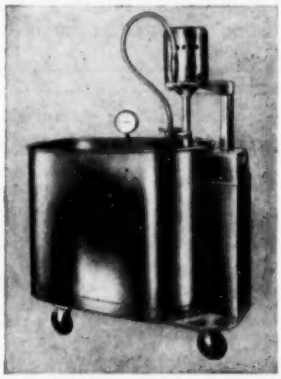

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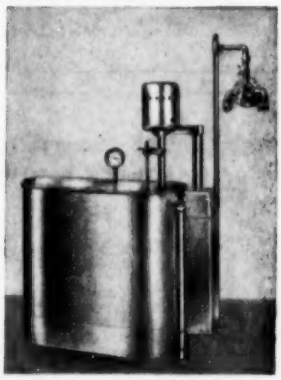

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Contents—August 1953

Volume XXXIV No. 8

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(Formerly Archives of Physical Medicine)

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ORIGINAL ARTICLES

Useful Modifications of Progressive Resistive Exercise Technique. Richard E. McGovern, Capt., MC, U.S.A., and Harold B. Luscombe, Col., MC, U.S.A. 475

Clinical Approach to the Etiology of Cerebral Palsy. Leon Greenspan, M.D., and George G. Deaver, M.D. 478

Medicolegal Aspects of Industrial Injuries. Samuel Sherman, M.D. 485

Personality Evaluation in Rehabilitation of Rheumatoid Spondylitis. Ben L. Boynton, M.D.; L. A. Leavitt, M.D.; Roxana R. Schnur, M.D.; Howard L. Schnur, M.D., and Maxton A. Russell, Ph.D. 489
Discussed by Lt. Col. R.H.B. Dear

Evaluation of Treatment of Duodenal and Gastric Ulcers in Physical Medicine and Rehabilitation Service. Joshua Ehrlich, M.D. 494

•

Editorial 501

•

Annual Reports, American Congress of Physical Medicine and Rehabilitation; American Society of Physical Medicine and Rehabilitation, and American Registry of Physical Therapists 503

•

Medical News 509

•

Book Reviews 513

•

Physical Medicine Abstracts 520

•

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and
HAROLD B. LUSCOMBE, Col., MC, U.S.A.
DENVER

Progressive Resistive Exercise, as described by DeLorme[1,2] and modified by DeLorme and Watkins[3], has proved to be an invaluable technique for obtaining rapid increase of muscle strength in the wide variety of patients seen in the clinics of large general hospitals. It is used with good results not only in musculoskeletal disorders as originally described, but also in neuromuscular disorders such as poliomyelitis, as described by DeLorme, Schwab and Watkins[4] and later by Mead[5].

With the full utilization of Progressive Resistive Exercise in a large busy clinic, time consumption by the physical therapist becomes a very important factor, hence a modification of the technique which would decrease time consumption without sacrifice of therapeutic benefit would be most useful. Another need for modification is seen in the response of patients with poliomyelitis to this procedure. These patients rapidly fatigue when performing Progressive Resistive Exercise, and cannot complete the routine of 30 repetitions, i.e., 10 at one-half maximal 10 repetition load, 10 at three-fourths and 10 at maximal load. This occurs in spite of the fact that they could lift the weight determined to be maximal for 10 repetitions when this figure was determined. This phenomenon is apparently unrelated to the strength of the muscles involved; it occurs as often in muscles graded 95 per cent as in 75 per cent or 80 per cent muscles. It is postulated that this response to exercise is due, therefore, to a lower "fatigue threshold."

Zinovieff[6] et al, noted this phenomenon in treatment of patients and modified the procedures to correct it. The modification (B) described appears to combine good features of the current Progressive Resistive Exercise procedure and Zinovieff's technique.

Method

Exercise A. — This modification, by its very nature, would decrease patient treatment time.

The exercise given in the sub-maximal range was decreased to 5 repetitions at one-half the predetermined 10 repetition maximum. After accomplishing this preliminary, the subject lifts his 10 repetition maximum 10 times. Theoretically, this makes the pre-maximal exercise only a "warm-up", while the entire *therapeutic* portion of the exercise is at maximal levels. Since many hold that only over-load or maximal load exercise produces hypertrophy, elimination of the sub-maximal repetitions should produce no great change in the end result.

Exercise B. — This exercise is the modification incorporating principles of the Zinovieff technique. The predetermined 10 repetition maximum weight is lifted 10 times after a short preliminary "warm-up" of unresisted active exercise through range of motion. After a rest period of one minute the weight level is decreased to three-fourths of the 10 repetition maximum for 10 repetitions. After another one minute rest, there is a final group of 10 repetitions at one-half 10 repetition maximum.

This exercise, like Zinovieff's Oxford Technique, is based on an attempt to keep all exercise at the maximal level allowed by fatigue at all times. Hence, by progressively decreasing the load, a normal fatigue curve is followed. It differs from the Oxford Technique in retaining the low repetition (30) feature of Progressive Resistive Exercise, whereas the English group utilized some 70 to 100 repetitions done with progressively decreasing loads. Their technique can be thought of as a revision of the

original (70-100 repetitions) DeLorme technique, whereas ours more closely resembles a mirror image of the current DeLorme 30 repetition exercise.

These experiments were done on ten normal individuals—five performing exercise A and five performing exercise B. The subjects were all male, and all in the 20-30 age group. Each individual performed his exercise once daily, five days weekly, for three weeks. Exercises were performed by all participants at the same hour each day for the entire experiment to avoid a variable of non-exercise induced fatigue from daily activities.

To avoid cross education, the exercises were unilateral in all subjects. The muscle used was the quadriceps femoris. Application of the weights, supervision of the exercise performance, measurements of girth, and recording of results were all done by the same therapists throughout to avoid individual variations in these details.

Comparison of experimental results (increase in 10 repetition maximum) will be made with results obtained using Progressive Resistive Exercise on patients. Patients selected as controls were males, all 20-30 years of age. Results will also be compared with those obtained in an earlier study at this clinic, utilizing 20 to 30 year old normal males on the DeLorme Progressive Resistive Exercises.

If experimental exercise A produces a gain in weight level as great as that obtained on Progressive Resistive Exercise, it would be useful because of its time saving feature. If experimental exercise B produces similar results, it would be useful as an alternate method of resistive exercise in neuromuscular disabilities.

In all experiments measurements of thigh girth were made, but results were of no significance. In all groups, both experimental and control, thigh girth increased in some subjects, decreased in others. It is believed that this is related to change or individual difference in subcutaneous and fat deposits—not related to muscle substance, at least in this short term experiment.

Results

Table 1 — Increases in 10 Repetition Maximums

	Increase Experiment A	Increase Experiment B	Increase Control P.R.E. Normals	Increase Control P.R.E. Patients
Subject 1	20 lbs.	27½ lbs.	15 lbs.	15 lbs.
Subject 2	10 lbs.	10 lbs.	15 lbs.	10 lbs.
Subject 3	20 lbs.	30 lbs.	5 lbs.	20 lbs.
Subject 4	20 lbs.	10 lbs.	15 lbs.	20 lbs.
Subject 5	15 lbs.	20 lbs.	15 lbs.	20 lbs.
Average Increase	17 lbs.	19.5 lbs.	13 lbs.	17 lbs.

It will be seen from Table 1 that both A and B procedures produced gains as great as the controls. From these experiments, it was felt that fairly suggestive results were obtained; however, the experiments were useful only as a pilot study because of the short time interval, the very small samples, and the comparison of normals to patients. In order to test further the modification felt to be the more useful, experiment A, a larger experiment was done, utilizing only patients.

These were all orthopedic patients and all referred to this Service for resistive exercise to the quadriceps. Alternate patients were placed on standard Progressive Resistive Exercise or in the experimental group. A total of twenty-eight patient-subjects was obtained, fourteen experimental, fourteen control.

Alternating cases between the two forms of therapy prevented exact duplication of sex distribution, diagnosis, and age level, but, because the cases were drawn from the Orthopedic Service of an Army Hospital, these variables were no great factor. All patients were in the 20-30 age group. Sex distribution, by chance, was almost identical for both groups. Twelve males and two females were in the control group; thirteen males, one female in the experimental. Distribution of diagnoses can be seen in Table 2.

Table 2 — Distribution of Diagnoses

Diagnosis	Experimental	Control
Post Fracture	6	3
Knee, Internal Derangement (old)	0	1
Post Arthrotomy, Knee	6	8
Muscle Atrophy, Secondary	2	2

All patients were satisfactorily convalescent from their original injury or operative procedure when exercise was started. All fractures were well-healed;

all operative scars were well-healed and painless, and all knee joint ranges of motion were complete. All patients performed their exercises for four weeks.

Table 3 — Increases in 10 Repetition Maximum Level Gained in 4 Weeks

Subjects	Increase Experimental	Increase Control
1	10 lbs.	15 lbs.
2	15 lbs.	2¼ lbs.
3	10 lbs.	17½ lbs.
4	5 lbs.	16¼ lbs.
5	7½ lbs.	10 lbs.
6	15 lbs.	15 lbs.
7	20 lbs.	12½ lbs.
8	25 lbs.	20 lbs.
9	10 lbs.	5 lbs.
10	15 lbs.	20 lbs.
11	12¾ lbs.	25 lbs.
12	12½ lbs.	5 lbs.
13	8¾ lbs.	7½ lbs.
14	12½ lbs.	15 lbs.
AVERAGE	12.786 lbs.	13.286 lbs.

Results can be seen in Table 3. The experimental group showed an average increase of 12.786 lbs., the control, 13.286 lbs. — a difference in the means of 0.5 lbs.

Summary

These results were subjected to comparison by statistical methods. It resulted in a "t" value of 0.242 and a "p" value of 0.81. These figures prove that the difference in the means, 0.5 lbs., is of no significance.

It is felt that this latter experiment indicates the modification of DeLorme Progressive Resistive Exercise produces results in terms of strength gain that are equal to those of the original procedure.

The advantage of the procedure, that is time saving, is useful in those clinics with heavy patient loads and limited equipment.

Experiment B, it is believed, suggests that results equal to those obtained with the Oxford Technique can be obtained with a low repetition exercise. In practice in this clinic, the exercise has been successfully accomplished by poliomyelitis patients who cannot accomplish DeLorme progressive resistive exercise. It is contemplated that further experimentation shall be done with this method.

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CLINICAL APPROACH TO THE ETIOLOGY OF CEREBRAL PALSY

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It has been estimated that one out of every two hundred live births has cerebral palsy. There have been numerous studies reported on the etiological factors: some based upon experimental work on laboratory animals; some based upon good statistical evidence; some representing excellent clinical work-ups, and others merely clinical impressions. If the incidence of cerebral palsy is to be reduced, the causes of the brain pathology have to be found to prevent those agents from producing their noxious effects which result in the clinical picture known as cerebral palsy. It is through the combined efforts of the research man and the clinician that this goal may be reached.

The purpose of this study, therefore, is to add to the clinical data relative to the etiology of cerebral palsy. The study was carried out at the Lenox Hill Pre-School Cerebral Palsy Clinic, where one hundred children were selected at random from those under treatment.

Method of Study

A complete history was obtained from the mother by one of us (L.G.). This included past obstetrical history. Each respective attending obstetrician and hospital where the child was born received a form to fill out which pertained to the pregnancy, delivery and to the condition of the child.*

Wherever possible transcripts were obtained from the referring physician and/or from whatever hospital the child had been under treatment or observation. The diagnosis, classification of type, area of body involved was made after an examination by the writers of this paper.

Analysis of Results

Ninety-seven mothers and two fathers were interviewed. In the latter cases one mother was deceased and the other had apparently lost interest in her child. The history of one child was obtained from the New York Foundling Hospital, where the child was awaiting disposition.

A total of ninety-two doctors and/or hospitals returned the information requested. It is being reported in this manner because in several cases the forms were filled out by the attending obstetrician at the request of the hospital. A paper could be written just about the value of some of the answers and how well or how poorly they correlate with history obtained from the mother. Two children were born in Puerto Rico; one at home, and the other in a hospital.

The study included ninety-seven families. There were siblings in two families and a twin in another. The average age upon admission to the pre-school clinic was 3.16 years, with the range from 11 months to 10½ years. At the time of the study the average age was 4.92 years, with a range from 11 months to 13½ years.

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*Forms for recording obstetrical and pregnancy data may be procured from either of the authors by request addressed to The Institute of Physical Medicine and Rehabilitation, 400 East 34th St., New York City 16.

A breakdown of the one hundred cases according to type is shown in table 1. This corresponds closely to the reports of

TABLE 1 — CLASSIFICATION OF CASES

TYPE	NUMBER		%
SPASTICITY	CONG.	ACQ.	60
HEMI.	21	5	
PARA.	15*		
QUAD.	17*		
ATONIC	1	1	
ATHETOSIS	25*		25
RIGIDITY	7		7
ATAXIA	7		7
TREMOR	1		1
	100		100

* One case with ataxia

Phelps,[1] Perlstein[2] and Pohl.[3] Six of our cases were acquired cerebral palsies and these have been excluded from our study when analyzing our results on the basis of pre-natal and natal factors. There were four "mixed" cases: three spastics and one athetoid with ataxia.

For the sake of conformity for comparison with other reports we have broken down the probable etiological factors into four groups: predisposing, prenatal, natal and post-natal factors. This paper will be concerned with predisposing and prenatal factors.

PREDISPOSING FACTORS

It has been stated that cerebral palsy is more frequent among boys.[2] In our study there were fifty-two males and forty-eight females, which is an essentially even distribution (table 2). In

TABLE 2 — SEX DISTRIBUTION

Type	Male	Female
Spasticity	29	31
Athetosis	14	11
Rigidity	2	5
Ataxia	6	1
Tremor	1	
Total	52	48

fact, the division is even of less significance if the acquired cases are not taken into account: This divides the cases into forty-eight males and forty-six females; therefore, in our group, sex cannot be considered as a predisposing factor.

According to statistics the outlook for the fetus and for the baby is best during the maternal reproductive period between the ages of twenty to thirty years. It is further stated that a woman who has her first pregnancy at the age of thirty-five years or more is an "elderly primigravida." These women are placed in a special category because certain complications unfavorable to successful childbearing are seen with greater frequency and thus the outlook for the baby is less favorable. Figure 1 shows the distribution of the mothers in our series according to age. The youngest is seventeen years of age and the oldest is forty-six years, with an average age of 29.6 years. It is interesting to note that though there are fifty mothers over the age of twenty-nine years, only eighteen are primigravida and only seven could fall into the category, "elderly primigravida."

Since it has been shown that there are similarities between the causes of fetal and neonatal deaths and cerebral palsy,[5,6] we have plotted the curve for the number of fetal deaths per 1000 live births[4] in relation to mothers' age, to compare with the curve we have obtained from our study. It can be seen that at the age group of thirty years or more, the curve for the number of cases gradually goes downward while that of the fetal deaths steeply climbs. This has been statistically evaluated and found to be significant and the hypothesis that the age distribution of both groups of mothers are the same can be rejected. Therefore, age alone is not a factor.

Being the first born is said to be another factor which predisposes to the occurrence of cerebral palsy[7] (table 3).

TABLE 3 — DISTRIBUTION ACCORDING TO SIBLING NUMBER

Type	1st	2nd	3rd	4th	5th
Spasticity	33	14	4	3	
Athetosis	12	7	4	1	1
Ataxia	5	2	1		
Rigidity	3	3	1		
Tremor				1	
TOTAL	53	26	9	5	1
%	56.5	27.65	9.6	5.32	1.06

Fifty-three children or 56.5%, were first born. Twenty-five of these mothers became pregnant subsequently: twelve have had one normal child each; three have two normal siblings respectively and one mother has borne three children since having her first child with cerebral palsy. Three of this group have had second children with cerebral palsy. The six remaining mothers have had miscarriages. It is interesting to note that there were thirty-six mothers in our series who had normal first-born children. This fact may be of some significance in evaluating whether being the first-born predisposes to cerebral palsy

or not. In our study we found thirty-one children to have been prematures. The range of weight of this group was from two pounds two ounces to five pounds seven ounces. Twenty-four of these had spasticity, (table 4), with an essentially

TABLE 4 — PREMATURES

TYPE	NUMBER
SPASTICITY	
HEMI.	8
PARA.	6
QUAD.	10
ATHETOSIS	5
ATAXIA	1
RIGIDITY	1
TOTAL	31
PER CENT	33

even distribution among the various types of spasticity.

Eastman[7] reports an incidence of 11.7 percent of prematures among a total of 28,493 deliveries. Therefore, this is a significant factor in our study, since our percentage is 33 percent of the total number of cases or three times the expected number.

Prematurity had decreased less than have other conditions responsible for deaths in the age group below one year. However, prematurity may be listed as the cause of death when a more specific entity such as malformation or birth trauma, does not appear on the death certificates. The problem, though, is the prevention of prematurity. In a study of 265 non-surviving liveborn prematures delivered at the Chicago-Lying-In Hospital between 1939-49, 56.6 percent of the mothers had some complication of pregnancy.[8] In our group approximately 50 percent of the mothers had complications of pregnancy: six had toxemia; four had premature separation of the placenta; two were the result of anti-Rh; one each of diabetes, rheumatic heart disease in the prenatal period and chicken-pox in the first trimester. Therefore prevention has to be through the mother.

The distribution of birth weights in our study (table 5) essentially follows the curve for normal infants, with the peak being between six and eight

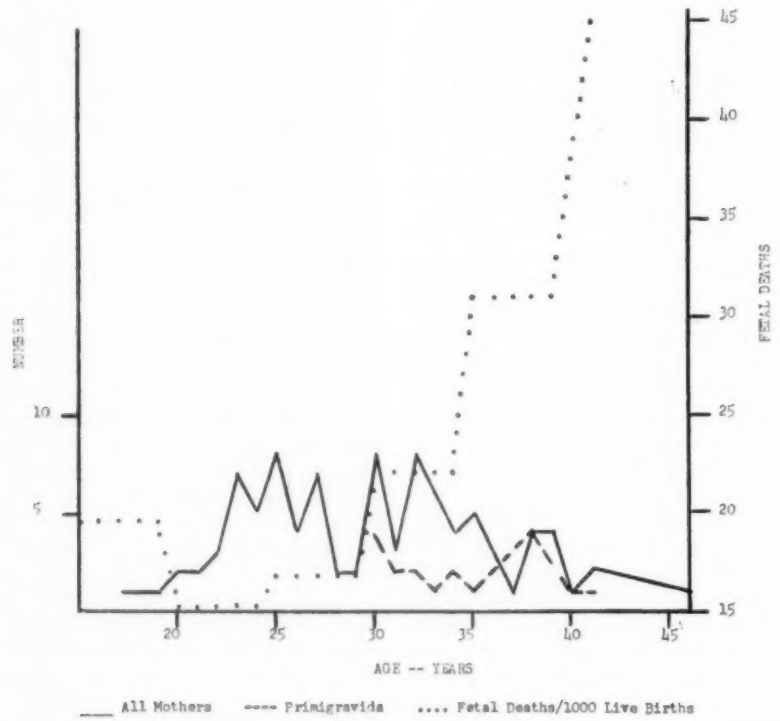

Fig. 1—Distribution of mothers according to age.

pounds. As mentioned before there is a much higher percentage in the lower weight group. Normally, two-thirds of living infants will range between 6.1 and 8.7 pounds and the remaining one-third of the infants will weigh less than 6.1 pounds or more than 8.7 pounds. One-third of our group is made up mostly of the lower weight limits and there are only eight children who weighed eight pounds or more. Therefore, excessive birth weights is not a significant factor from a statistical point of view. However, in three of the children who weighed nine pounds or more this may have been of clinical significance. One infant had anoxia and weakness of the right extremity following birth and this may have been due to compression or manual traction. The second infant had to be delivered by mid-forceps and Dührssen's incisions after 25 hours of labor and the infant had convulsive seizures on the sixth day of life. The third child had to be delivered by caesarian section because of cephalopelvic disproportion, but the infant showed no signs of any cerebral injury during the neonatal period. In determining whether or not excessive birth weight is a predisposing factor one must take into consideration the build of the mother and the size of her pelvis. If the mother is large she will have no difficulty in delivering a large infant. A mother with an inadequate pelvic outlet will have difficulty in delivering an average size baby.

TABLE 5 — DISTRIBUTION OF BIRTH WEIGHT (LBS.)

2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10
4	9	13	10	23	27	4	4

Twin pregnancies are said to be a predisposing factor. And, of twins it is said to be more prevalent among the second one delivered.[2] Twins occur once in 85.2 deliveries. In our study we had a pair of identical twins and one of five other pairs. In the latter group, four of the children are well and the fifth, which was the second delivered, was a macerated fetus. Five were the first infant delivered and two were the second. Vertex was the presentation in all except one, which was a breech. Six of the infants were premature, and that may have a greater bearing upon the cerebral pathology than the fact of a multiple pregnancy. If this were a normal group, we should expect one pair of twins. But, we have representatives of six pairs. Therefore multiple pregnancy plus the fact of prematurity which usually accompanies it may be considered as a predisposing factor.

As has been reported in other studies the colored race does not have as many cerebral palsy children as white. In our study there were only three colored children.

PRENATAL FACTORS

Prenatal factors are those which have their noxious effect upon the brain of the fetus from the time of conception to the onset of labor. Some of these factors may be hereditary and others are acquired in utero and adversely affect the fetus.

Hereditary — In our series no definite clinical entity was found which could be traced to a genetic factor. However, it is of interest to mention the fact that there are a few children who have relatives with cerebral palsy which apparently was congenital in origin. Seven children in our study have cousins who are known to have cerebral palsy; one of these has two cousins with this condition. While casually examining the brothers of two of the children in our clinic, we found that they had mild forms of spasticity. One mother had said that the boy had been tripping and that she felt it was correct for a three year old to walk on his toes.

Anoxia — Anything which interferes with the function of the placenta and the umbilical cord to supply oxygen to the fetus will be followed by anoxia in the fetus. This can be produced in four different ways: (1) there may be interference with the source of oxygen; (2) the source of oxygen may be sufficient but there is not a sufficient number of red blood cells to transport the oxygen; (3) the source of oxygen and the amount of red blood cells may be sufficient but blood does not move fast enough through the blood vessels to permit normal trans-

fer of oxygen to the tissues; and (4) a toxic effect upon the cells which makes utilization of oxygen impossible.

Table 6 demonstrates the break-down of the causes of fifteen cases in which prenatal anoxia was a probable factor in the etiology. In two cases prenatal anoxia was caused by acute cardiac conditions in the mothers which resulted in the slowing of the rate of flow

TABLE 6 — PRENATAL FACTORS ANOXIA

CAUSES	SPASTICITY	ATHETOSIS	ATAXIA
Cardiac	1		1
Surgery Plac.		3	
Abrupt. Plac.	2	1	
Infarct.	1		
Cord, Neck	2	2	
Medication	1	1	
Total	7	7	1

of blood through the blood vessels. One mother required digitalis during the last two months of pregnancy because of nocturnal dyspnea on the basis of rheumatic heart disease with valvular involvement. The infant was delivered at term, by breech extraction, and at that time showed no signs of acute cerebral anoxia or hemorrhage. The second mother had rheumatic heart disease with failure. Her child, a spastic, was apparently a normal premature at birth, requiring some suction at time of delivery. The sustained periods of anoxia due to stagnation of blood as a result of the cardiac conditions of the mothers may have been the primary insult to the fetal brain.

Surgery was performed on the mothers of three of the children in our series. The indication for surgery and/or the type of anesthesia used may be the cause of anoxia.

The mother of one child had been having attacks of dyspnea during her pregnancy. At the seventh month, her condition became so desperate, for she was almost constantly cyanotic, that an emergency operation was done for removal of a substernal mass which was compressing the trachea so that its lumen was about the size of a pencil. This mass proved to be a benign adenoma of the thyroid. Following the operation an emergency tracheotomy was done, and because of continued cyanosis daily bronchoscopies were necessary for a week. In order to aid the mother, attempt was made to terminate pregnancy by means of intravenous post pituitary (pituitrin®), but this failed. The mother recovered and she delivered at term an apparently normal child who, at the time of birth, showed no evidence of acute cerebral anoxia or hemorrhage. This child is an athetoid, and the cause of her pathology is most likely the interference with the source of oxygen.

The mother of another child, who is an athetoid, underwent an abdominal operation during the third month of pregnancy for a possible ectopic pregnancy. Spinal anesthesia was used. This pregnancy was also complicated by premature separation of the placenta. The infant was premature of twenty-nine weeks gestation. At birth respirations were labored. Here we have a complete picture of anoxia: spinal anesthesia, which may produce hypotension in the mother and thus decrease the flow of blood through the vessels; separation of the placenta, which may interfere with the oxygenation of fetal blood, and finally labored respirations at birth. This sustained anoxia probably caused the cerebral pathology and thus the clinical picture seen in this child.

The mother of the third child, another athetoid, was operated on for hemorrhoids during the first month of pregnancy under thiopental (pentothal®) sodium anesthesia. The child, however, had hemorrhagic disease of the newborn and showed no signs at birth of (cerebral) anoxia.

Bleeding of the Mother During Pregnancy.—This may be a cause of anoxia to the fetus if the bleeding is profuse enough. Eastman[7] reports that two out of ten women have vaginal spotting or actual bleeding during the early months of pregnancy and of these two, only one aborts. He believes that many cases termed threatened abortion are not threatening to abort at all. In our series there is a history of various degrees of bleeding during gestation in 17 cases; only one was labeled by the obstetrician as a threatened abortion. This falls into the percentage for normal pregnancies.

Therefore, bleeding alone is not a factor in the etiology of cerebral palsy, but the cause of the bleeding may be. This is the case in premature separation of the placenta. Though we have had six such cases only three had bleeding during pregnancy prior to labor and would fall into this category. One has already been mentioned in the preceding discussion of surgery. The second child was delivered by caesarian section because of premature separation of the placenta; the infant was a premature and cyanotic at birth. This child's disability is spasticity. The third child is also a spastic, who was also a premature and cyanotic at birth. It is apparent that this condition is rather the cause of prematurity and the hazards of prematurity may be the cause of the cerebral pathology.

Placental infarcts will prevent proper oxygenation of the blood if there are a sufficient number or if they are large enough. Usually the infarcts are the result of primary pathology, toxemia. This was the fact in the one case reported as having placental infarcts. The child is a spastic.

The condition of the cord around the neck is in this category as a cause of prenatal anoxia because this occurs prior to the onset of labor and labor only increases the hazard by mechanical factors. Fetal anoxia here is due to the slowing of blood through the umbilical cord though the source of oxygen may be adequate. There were four such cases in our series. Two of these are athetoids and both children were anoxic at birth. One infant was born by a precipitate delivery and the other one had no other complicating factors. The other two are spastics and they each had complicated deliveries with dystocia and use of midforceps. It appears as though spasticity tends to be the picture if there are a number of insults to the brain.

The probability that medication will produce fetal anoxia is brought up here by reason of the fact that the mother of two of our cases received in one instance phenobarbital daily for the last trimester and the child had shallow respirations at birth and with her second pregnancy she was given three grains of (amytal®) amobarbital sodium given twice daily for three weeks antepartum and the infant also had rapid and shallow respirations at birth. The primary complication in both cases was toxemia. The former child is a spastic and the latter an athetoid.

Fetal Cerebral Hemorrhage.—One of the most common causes of prenatal cerebral hemorrhage is toxemia of pregnancy (table 7). According to Eastman[7] toxemia of pregnancy is seen in six or

TABLE 7 — OTHER PRENATAL FACTORS

FACTORS	SPASTICITY	ATHETOSIS	RIGIDITY
TOXEMIA	5	1	
Rh	2	4	1
DIABETES	1	1	
MYXEDEMA	1		
INFECTION	2		

seven per cent of all gravidae. The number of cases of toxemia in our series falls within this range. Five of the six cases have spasticity and one is an athetoid. Included in this group are siblings whose mother has malignant hypertension. It is interesting to note that all of these children were premature infants. Two of the mothers were over thirty-five years of age and infants were delivered by caesarian section. Here we see the intermingling of factors which may be the cause of cerebral palsy. This is to be discussed at a later date.

Rh Factor.—Usually the type of cerebral palsy seen where the mother is Rh negative and the infant is Rh positive and the mother has been previously sensitized, is that typical of basal nuclei involvement. This is probably due to the fact that with hemolysis of the fetal blood there are fewer cells to transport oxygen and the basal nuclei are most sensitive to anoxia. Seven cases of cerebral palsy in our series are due to the Rh factor: four are athetoids, one rigidity and two spastics, of which one has a hearing deficit. One of the latter had been delivered by caesarian section. Six of the children were second born and the seventh was a third child. Only one child had received a complete exsanguination transfusion and this was done within five hours after birth. The others were unfortunately born too early, for at the time of their births exsanguination

and exchange transfusions were not being done at all big hospitals. Though they did receive small direct transfusions, the condition was not prevented. Perhaps in future studies it will be found that Rh is only an incidental factor as a cause of cerebral palsy, as exsanguination and exchange transfusions are being done in almost all hospitals when the indications are present.

Metabolic Disturbances.—There were two children of diabetic mothers and the mothers had received treatment during the entire pregnancy. Both of these children were the second born to their respective mothers. Their siblings are apparently normal. One child weighed seven pounds twelve ounces and the other weighed four pounds eight ounces, delivered by caesarian section under spinal anesthesia. One mother had developed diabetic toxemia and the infant showed signs of intracranial pathology at time of birth; this child is now an athetoid. The indications for the caesarian section for the other child was uncontrolled diabetes with excess hydramnios. There were labored respirations at the time of birth. This child now is a spastic. One mother had been taking thyroid for fourteen years because of myxedema. The child apparently has had no signs of any thyroid dyscrasia.

Infection.—It is of general knowledge that virus infection during the first three months of gestation may affect the fetus. This has been especially true of German measles. In our series one mother had chicken-pox during the first trimester. The child was a four pound premature and has spastic hemiplegia with a hearing defect. The second child whose mother had an infection during pregnancy is also a spastic. The infection in this case was syphilis. Though the mother insists this to be so we have been unable to trace the doctor who treated her nor the place of treatment. At present both have negative Wassermans.

SUMMARY and CONCLUSIONS

An analysis was made of the predisposing and prenatal factors as etiological agents in ninety-four cases of cerebral palsy selected at random from those treated at the Lenox Hill Pre-School Cerebral Palsy Clinic. This study was based upon histories obtained from parents, obstetricians and hospitals. After correlating all factors certain conclusions can be made:

(1) Sex was not found to be a predisposing factor.
(2) The age of the mother is apparently not a predisposing factor.
(3) Being a first-born does not definitely act as a predisposing factor, for there were almost as many first-born normal siblings of children with cerebral palsy in our study as there were first-born cerebral palsy children.
(4) Prematurity is definitely a predisposing factor. However, 50 per cent of the mothers had had some complication of pregnancy which could be the direct cause of the prematurity of the infant. Prevention, therefore, has to be through the mother.
(5) Though the range of birth weights of the children in our study did not reveal even the normally expected percentage of heavy infants, in three cases excessive birth weight was probably a predisposing factor.
(6) Multiple pregnancies with the associated prematurity may be considered as a predisposing factor.
(7) Prenatal anoxia could be considered an etiological agent in fifteen cases of cerebral palsy.
(8) The number of mothers with toxemia was of the same percentage as seen in all gravidae. All the infants were prematures and five out of the six were spastics.
(9) Seven per cent of our cases were due to the Rh factor.
(10) Diabetes was apparently an etiological factor in two children.
(11) Two children have cerebral palsy due to infections in their mothers.
(12) Throughout the study there has been the impression that the causation of an individual case of

cerebral palsy by only one etiological factor is the exception and the individual cases are probably due to an intermingling of factors.

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MEDICOLEGAL ASPECTS OF INDUSTRIAL INJURIES

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In 1948, approximately 2,000,000[1] disabling injuries occurred in the United States as a result of industrial accidents. This means that one industrial injury took place every sixteen seconds, and that a worker was killed or maimed in an industrial accident every four minutes. The economic loss to the worker approached $2,000,000,000, and the loss to production approximated twice this figure so that the total annual loss due to disabled workers was estimated to be 5.5 to 6 billion dollars. While these figures stagger the mind, the social significance of these disabilities should not be disregarded. Financial and medical benefits must of necessity be provided for these injured workers in an efficient, dignified, and definite form. Were these benefits not available, then the disabled might be reduced to pauperism or become dependent on county or state relief, or at least be reduced to sub-standard living. To avoid such pitfalls, a morally satisfactory solution has evolved over a period of many years in the form of Workmen's Compensation Acts. These acts provide cash benefits and medical care to victims of work-connected injuries, the cost being borne by the consumer through the medium of insurance, the premiums being ultimately passed on in the cost of the product. The amount of compensation is not intended to restore the worker's financial loss, but it does provide funds, which, if added to his remaining earning ability, if any, will permit him to live without burdening others.

Before discussing the basic features of a typical Workmen's Compensation Act, it might be well to mention some historic beginnings. Reference to compensation for injured workmen existed in Biblical writings. In the year 1100, the Laws of

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Henry I provided a crude equivalent of the modern principle. Brunner in Early Germanic Law stated:

> The master was liable for the 'wergeld' of the workmen if the latter lost his life in the service and for the appropriate money payment if he was injured — so far as the injury could not be imputed to some third person for whom the master (who had to answer for the misdeeds of his own people) was not responsible. If one who was in the service of another lost his life by misadventure by reason of a tree or of fire or of water, the accident was imputed to the master as homicidium. If one person sent another away or summoned him to the former's business and the latter lost his life while executing the order, the former was taken as the "causa mortis."

Not much is known of the master's liability to his injured servant between the years 1200 to 1830. All legislation prior to Workmen's Compensation Acts accepted the basic idea that the employer was liable to the employee only for the negligence or fault of himself, or at most, of someone for whom he is generally responsible. In 1884 Germany adopted the first modern compensation system. In 1897, the British Act established compensation benefits. In 1910 a New York State Commission studied the German plan and passed an act which included only unilateral employer liability with no contribution to be made by employees. The exacting of contributions from the employees was thought to be unconstitutional and only for this reason was this not recommended. By 1920, all but eight states adopted Compensation Acts. On January 1, 1949, the last state adopting compensation benefits was Mississippi. It is worthy of mention that most of state compensation legislation was modeled after the New York law, and does not provide for domestic or agricultural workers.

In 1908, the first Federal Employer's Liability Act (FELA) was passed. It provided that employees of common carriers engaged in interstate commerce or foreign commerce were liable for the negligence of all its officers, agents, and employees, and for defects due to negligence in track, equipment, engines, and cars, resulting in injury to employees. Contributory negligence only mitigated damages.

It might be well now to differentiate, in brief, the essential differences of the Workmen's Compensation Act and the Federal Employer's Liability Act. In some states, the Workmen's Compensation Act may have no waiting period, or one of seven days, as found in Pennsylvania. In this state, as well as other states, there is a limit on medical expenses. However, twelve states, according to the U.S. Department of Labor Bulletin No. 125, published September 1950, provide medical aid without limit as to time or amount. The Pennsylvania Compensation Act specifies the number of weeks the injured shall receive cash benefits for permanent disabilities, while many other states provide payment for life in permanent disablements. The Federal Employer's Liability Act has no limit on medical expenses and has no fixed minimum or maximum payment, but negligence of the employee, in disguised form, is a consideration in the Federal Employer's Liability Act. In the Workmen's Compensation Act, the employer can contest an award or reopen the case if he feels the worker's health has improved. The injured worker, on the other hand, can petition to have his award increased. Railroad workers permanently disabled for all employment are entitled to lifetime benefits under the Railroad Retirement Act, regardless of the origin of such disabilities and independently of any injury settlement. The injured railroader can enter suit three years after onset of injury, while in many states the injured worker must enter a claim within one year following the accident.

The usual Compensation Act includes the following features[2]:

1. The employee is automatically entitled to certain benefits whenever he suffers a "personal injury by accident arising out of and in the course of employment."
2. Negligence and fault are largely immaterial, both in the sense that the employee's contributory negligence does not lessen his rights and in the sense that the employer's complete freedom from fault does not lessen his liability.
3. Coverage is limited to persons having the status of employee as distinguished from independent contractor.
4. Benefits include hospital and medical expense, and cash wages usually ⅓ to ⅔ of his average weekly wage. In death, benefits for dependents are provided. Arbitrary maximum and minimum limits are ordinarily imposed.
5. The employee and his dependents, in exchange for these modest but assured benefits,

give up their common-law right to sue the employer for damages for any injury covered by the Act.

6. Administration is typically in the hands of administrative commissions, and as far as possible, rules of procedure, evidence, and conflict of laws are relaxed to facilitate achievement of the beneficent purposes of legislation.
7. The employer is required to secure his liability through private insurance, State Fund insurance in some states, or "self-insurance."

Having considered in a general fashion the importance of industrial traumata, as well as the development and purpose of compensation acts, medicolegal desiderata will now be discussed. Great responsibility is placed upon the physician who determines the extent of disability, for this assessment is strictly medical in nature. The function of the court is to establish wage-earning capacity.

Medical opinion may interfere with the desires and interests of the injured employee, yet this opinion must be unbiased and must indicate disability in terms of percentage incapacitation, duration, working ability, and physical impairment. Also the specific nature of the worker's tasks must be understood. It must be known whether the worker can return to his former occupation. His future wage will depend on readaptability, which in turn is dependent on age, skill, mental judgment and willingness to work.

Since disability evaluation is a complex medical problem, the claim for such disability must be based on an injury or its sequelae. Total disability does not imply absolute physical incapacity, but it does prevent a claimant from working regularly at his own occupation. A total permanent disability implies that a worker cannot resume any type of gainful occupation, while a partial permanent disablement limits a worker permanently to some degree.

Legal opinion may use ordinary manual labor as a test for work capacity. The physician, however, must present an acceptable opinion for the court to reach a fair decision. To quote Lattes[8]:

> A complete quantitative evaluation, however, is not only measured in terms of the amount of physical damage, but also in terms of duration. Occupational standards must be practical and should be interpreted entirely on the worker's ability to perform his job.
>
> The employer may not be willing to place the man back on the job for fear that he cannot do his normal work and a new employer may not hire him while he is partially disabled. So return to work is a matter of opinion.

When medical evidence is presented in court, a complete history must therefore be had; this should include physical findings, an opinion as to cause, type and length of treatment, estimate of disability, and outlook. The events leading up to the accident should be listed chronologically.

The attorney's lack of medical knowledge may produce questioning which is confusing, and he often is at a disadvantage on attempting to break down medical testimony of a reputable physician. The conflicts which appear result essentially from differences of opinion by examining physicians in their estimates of disability or from the relationship of the disability to the trauma. Because of these differences, the establishment of impartial medical boards, experienced in industrial injuries, would be of inestimable help. The so-called "Minnesota Plan" has been a step in this direction and has resulted in more carefully prepared medical testimony. It has given physicians, attorneys, and courts the opportunity to refer such testimony to this board for review. This board is reinforced by the State Medical and Bar Associations and prevents collusion between attorney and physician. Controversial medical opinions which hamper and delay disposition of claims are managed then with dispatch. In Pennsylvania, when differences of medical opinion arise, the compensation court appoints an expert upon whose opinion a final decision is rendered. In Canada the decisions of the Workmen's Compensation Board is final and eliminates the use of courts, technicalities and appeal. No part of an award can be given to an attorney without the Board's sanction; this results in little need, if any, of attorneys. There is freedom of choice of medical authorities. Only if the claimant's physical condition changes, can an appeal be made and that only to the same board. Medical aid is unlimited.

Medical testimony deals with uncertainties at all times. The quality of evidence, therefore, may decide a medicolegal controversy. The medical witness

should know whether an injury was the sole cause or whether it aggravated an illness, since full compensation can be awarded for such aggravation as well as for direct injury. This is important, since most disputes in medical compensation cases are related to trauma and disease. The attending physician must be cognizant of all facts upon which a sound conclusion may be drawn according to compensation law. It should also be pointed out that, in spite of highly technical medical opinions, a lay commissioner alone may reverse the findings of an expert or medical board.

Another medicolegal consideration is the relationship of the physician to his patient and to the involved insurance carrier as compared to the usual physician-patient relationship. The patient waives the "law of confidential communications" where the compensation carrier and physician are concerned. If a physician feels he may be embarrassed or prefers not to make an examination or complete a report, the insurance carrier should be so notified. Another physician can then examine the injured patient without disservice to anybody.

When an injured man appears ready for work, he must be given a release by the attending physician stating that he is physically able to return to work as far as the industrial injury is concerned. If the patient in the meantime has developed an intercurrent but unrelated disability, the physician must still notify the carrier as to his work status relative only to the industrial injury. The carrier, in addition, should be apprised as to permanence of the disability so that provisions can be made for proper job placement in the future. Sometimes it is most difficult from a medicolegal standpoint to determine the end point of convalescence. A functioning part may not be anatomically healed, thus again knowledge of the worker's specific duties and even medicolegal judgment is required.

In previous remarks, it is evident that the ultimate goals of the physician and insurance carrier are a counterpart of each other, namely, a speedy recovery with a satisfactory end result. A damage suit, however, may minimize rehabilitation or keep it in the background until after a verdict is won. The injured person may be considered irreclaimable. Dawson[4] tells the story of a young amputee who was enrolled in a rehabilitation center. He was fitted with artificial limbs and was making wonderful progress in an accounting course and was assured a good job upon completion of his training. One day he removed his limbs and dropped the training course. He advised the rehabilitation director that when he first enrolled he agreed to a $40,000 voluntary settlement from his employer, but now after legal advice, had decided to sue for a larger amount. He stated that his lawyer wished to exhibit him to the jury as a helpless and not a rehabilitated person.

The physiatrist today often plays an important role in the care of industrial injuries. Disability evaluation is a significant part of his work, and he therefore must familiarize himself with pertinent legislation as related to the injured workman. He must be prepared to testify in court as an expert, since his experience is backed by sound rehabilitation philosophy. Having, then, the tenets of total rehabilitation understanding, he should have no peer in medicolegal controversies.

In concluding, I should again like to quote Lattes[3] who remarked, "Industrial legal medicine should be one of the forces toward elimination of contrasting interests between various factors of production. But only through impartial and disinterested action, inspired by ethical and scientific ideals, will it deserve the consideration and respect of the public and of magistrates who are responsible for social equilibrium."

Summary

The importance of industrial injuries, with their related socio-economic aspects has been discussed. Historic origins of compensation legislation were described as well as some concepts of present legislation. It was shown that medicolegal controversies, though complex, occur

frequently in industrial injuries and that the physician involved must be thoroughly grounded in disability evaluation before rendering opinions. The physiatrist's role is becoming increasingly important in medicolegal encounters.

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PERSONALITY EVALUATION IN REHABILITATION OF RHEUMATOID SPONDYLITIS

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For the past several years we have treated patients suffering with rheumatoid spondylitis in the orthodox manner with the usual success and failure incident to this group of chronically ill individuals. Because our results in any given patient were unpredictable, we became convinced that a more adequate understanding of the patient's personality was desirable in order that we might capably assist this patient in meeting his problems. Inasmuch as the Physical Medicine and Rehabilitation Service is accustomed to using the team approach, it was a natural sequence of events that caused us to call on the clinical psychologists to assist in the understanding of our patients and it is the result of their study that is here presented. For the past year and one-half, with the information which has been provided through the medium of clinical psychology, we have reached a better understanding of our patient and his problems and, of greater import still, we have been able to assist the patient to attain a deeper insight of himself, with a resultant improvement in his ability to meet the problems of daily living. Briefly, by means of bringing in the psychology discipline, we as Physiatrists, have been able to understand better and more effectively approach our patients with rheumatoid spondylitis.

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S. E. Cleveland, Ph.D. and Seymour Fisher, Ph.D., Clinical Psychologists, Neuropsychiatric Service, Veterans Administration, Houston, Texas, assisted in this work and have independently submitted a paper, "Behavior and Unconscious Fantasies of Patients with Rheumatoid Arthritis" read at the American Psychological Convention, Washington, D. C., September 1952, for publication in the Journal of Psychosomatic Medicine.

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By means of interviewing of the patient and projective testing, including the Rorschach, the Thematic Apperception and Draw-A-Person Test, we have attempted to gain some idea of his total problem. This evaluation has been done for the last twenty-five patients with rheumatoid spondylitis, and, from the data accumulated thus far, we have been able to formulate a composite picture of these patients. The typical picture presented by the patient with rheumatoid spondylitis has been checked against that presented by similar tests administered to patients who suffered from low back pain but who did not have objective evidence of rheumatoid spondylitis at the time they were tested. Twenty such "controls" have been tested to date and in no instance did this group show the same personality picture as did the rheumatoid spondylitis patients. It is of interest to note that one "control" patient was found to show a psychological personality pattern typical of rheumatoid spondylitis. Further clinical investigation disclosed the fact that this patient had been misdiagnosed as suffering from low back pain of lumbo-sacral strain but in truth was suffering from the early manifestations of rheumatoid spondylitis; subsequent follow-up of this patient confirmed the diagnosis.

Overtly, the patient with rheumatoid spondylitis is a calm, composed and optimistic individual who rarely, if ever, expresses or even feels hostility. He boasts of never fighting or getting angry and is quite optimistic in outlook in spite of the crippling nature of his disease. He takes an active interest and intensive participation in sports manifesting more than the average interest of the adolescent. Contrasting with this vigorous activity is the patient's interest and participation in household duties and activities, such as cooking. In respect to his own personality, the patient complains of shyness and social inadequacies. He shuns the limelight and speaks of desiring to be "just average and not to stand out at all." The complaint is made of an inability to say the right thing at the right time or speak at all in groups or social gatherings. He is constantly concerned about his looks, his clothes, and the impression that he is making on others. To quote a typical statement: "People have to come to me to meet me. I can't go to them; I am shy. I am always worried about what people will think of me. I don't want to stand out; I just want to be average." Although he strives to create the impression of wide experience sexually, he is actually reserved in this area. His wife may be a childhood chum or acquaintance of long standing.

The patient usually marries a woman who is aware of his illness and the likelihood that he will live a great part of his life as a cripple. The psychological closeness which he feels to his wife is described as follows: "We do everything together; we even think alike; we like the same things; we work together; I help her in all the housework and the cooking." The nature of their relationship is revealed with great insight: "My wife organizes our home; she takes my pay check just like mother took dad's. When I get sick, she babies me just like mother used to do."

The parents of the patient are described in the following manner: Mother is seen as a hard working, efficient, "Christian" woman. The latter term implies self-sacrifice to the point of martyrdom. "Our home is open to anyone, even strangers. You are always welcome there. Mother would give anyone anything and go without herself. Anything I ever wanted, I just asked for it and she gave it to me. She treated me just like a baby." The typical mother was an excellent housekeeper, compulsively clean and efficient. Frequently, she was an active church worker and active also in social and community affairs. She was an excellent organizer and a hard worker in the home. "She could do more work than all the kids." The arthritic patient characteristically says of mother: "She could get along with everyone. If you couldn't get along with her, there must be something wrong with you." However, the mother figure was also the source of considerable frustration, since

all these patients readily admit that she was the disciplinarian in the home and a strict one at that: "Of course, mother disciplined us. She was the real organizer."

It is interesting to note the unconscious fantasies that the patient has of women and of mother in particular. Although considered as a provider and a source of comfort, she is also conceived as a sexually attractive and seductive figure. Unconsciously the patient draws a close parallel between mothering and seducing. For example, one female figure is described: "The woman is dressed nice. She is of moral thinking. If she were 50, she would act it and not act young." A Thematic Apperception Test* story conveys the equation of mothering and seduction directly: "The girl there is trying to baby the man along. She is trying to seduce him."

Father is perceived as being less consistent in his behavior, being strong and weak at the same time. He is seen as a hard working, honest person, a friend to everyone, and very good natured. His inconsistency is revealed, however, in a patient's description following these introductory remarks: "He was quiet but watch out! When he got angry he would blow up and he blew up periodically." Inconsistency of behavior is also employed in such descriptions as: "Father was not strict but his word was law. If he said something he meant it." Frequently father was absent from the family, beginning early in the patient's life, although this is not essential to the arthritic syndrome. Instead, father may be physically present but psychologically absent, weakened by chronic illness and disease, or absent from the home periodically because of occupation. Thus, the patient seems to have been identified with an inconsistent and shifting male figure. Father highlighted the dangers of direct emotional and aggressive expression. The patient's own controls over these impulses were of an "all-or-none" quality.

Projective testing, including a battery consisting of the Rorschach† Thematic Apperception* and Draw-A-Person Test,‡ indicate a chaotic personality in the patient and suggest that he is a very sick person, psychiatrically speaking, with marked personality regression. A characteristic finding in these tests is the prominence in the patient of unconscious fantasies of voyeuristic and exhibitionistic wishes. There is large value placed on the act of looking and being seen. The desire to look at women, its tempting yet forbidden aspect, is emphasized in our material. One patient says of his figure drawing, "The woman has on short pants. Every part of her body is nice. She is not dressed even just good enough to go out to a show in a small town."

Another patient says of his drawing, "The housewife stooped over, washing too many dishes and clothes. Got on a short dress, so she is not stepping out." Fantasies of this nature are characteristic of this group and support the hypothesis that women and especially mothers have a sexual attractiveness which is largely satisfied through looking. Hard work and proper conduct by these patients atone for the guilt which is felt in the process of looking. Also revealed on these tests is an emphasis on the inconsistent nature of things. On the Rorschach Test the patient gives unusual responses referring to objects with hard, bony, and shell-like exteriors but soft jelly-like interiors. Such contradictory statements seem to have self-reference. This implies that he thinks of his own body literally as a hollow container filled with a soft substance and covered with a hard, impenetrable surface. Inside he is filled with uncontrolled and "weak" material but on the outside there is a rigid guarding barrier.

What are the implications of these findings to the psychologist who is called

*A series of ten cards showing pictures of people, concerning whom a subject is asked to tell a complete story.

†A series of ten cards depicting inkblots of varying shapes and colors. The subject is asked to tell what these inkblots look like to him.

‡A procedure in which the subject is asked first to draw a full length figure of a *person*, and, second, a figure of the opposite sex to that just drawn. He is then asked to make up a story about the two figures.

upon to evaluate these patients and to the physiatrist who is responsible for their management? First, it has been suggested that the arthritic symptomatology seems to be an expression of a consistent pattern of psychodynamics. By means of it, there is expressed an intense narcissism and intense desire to be looked at, to be a focus of attention. Second, the symptomatology revolves about repression and inhibition of hostile feelings. It is clear that none of the arthritics was comfortable with his own anger and rage. The stiffened body musculature was a way of saying, "I surround myself with a hard outer wall which denies outlets for the bad angry impulses and also keeps people from knowing how angry I feel inside." Third, in a more fundamental sense, these symptoms are an expression of markedly inconsistent goals and ideas of the world entertained by these individuals.

To illustrate our approach to management of these patients, three typical case histories are presented:

CASE 1. — T.H.: A 28 year-old graduate student in Physics at the University of Texas and a Navy Veteran of World War II was admitted to the Physical Medicine and Rehabilitation Service with the chief complaint of pain and stiffness of the back of an incapacitating degree for the past six years. Examination revealed a well-developed and slightly undernourished white male who appeared chronically ill. There was moderate limitation of motion of the cervical spine in all directions. Chest expansion was one-half inch. Thoracic and lumbar spine were fused and without flexibility. Posture was fair, with minimal kyphosis. There was tenderness over both sacro-iliac joints and moderate spasm of the para-spinal musculature. The sedimentation rate was elevated in the 30 to 40 millimeter range and remained elevated throughout the hospital course. There was a slight anemia. X-rays of the spine revealed decalcification, spur formation, and calcification in the longitudinal ligaments.

On psychological examination, the patient displayed a very passive manner and certain effeminate identifications. The Rorschach Test suggested a good intellectual potential and considerable breadth of expression; however, the picture was not that of a well balanced personality. Emotional expression was childlike and undeveloped. Form perception was impaired. This latter fact indicated distortion of reality, which was further emphasized by incapacity for free expression of feelings. He had a capacity for spontaneous emotional expression but usually was too fearful of indulging in this type of behavior except under very limited conditions. Dependency feelings were very thoroughgoing. He was fearful that anyone should think badly of him. This fixed set of non-aggression apparently held in his relations with both men and women. Mother and father figures were looked upon as comforting and supporting. Apparently guilt and dependency needs forced a repression of aggressive impulses. As a result there was considerable potential for profiting from intellectual endeavors and inter-personal relationships; but these represented frozen assets.

On the basis of the total clinical and personality findings, our plan of management consisted of: 1. accepting the patient and his symptomatology without question; 2. survey for foci of infection by the Dental, Ear-Nose-Throat and Urology Services; 3. corrective therapy for general conditioning exercises with emphasis placed on breathing and posture training; 4. physical therapy for diathermy and massage; 5. salicylates; 6. a high caloric, high protein diet with a supplement of Provimalt 3% (a protein-vitamin-mineral mixture); 7. blood transfusion to correct anemia; 8. x-ray irradiation with 3 series of 600 r to lumbo-sacral spine and cervical spine at 6 week intervals; 9. work by the patient in the Radio-Isotope Laboratory of the hospital as a physicist after arrangements had been made for this type of industrial therapy, and 10. vocational guidance and placement.

During the latter part of the hospitalization, patient was placed on a low dosage of cortisone and ACTH (Cortisone 12½ milligrams orally every 12 hours, ACTH 10 milligrams by hypodermic every 12 hours). Following institution of this regimen, the patient became symptom free, with greater work tolerance as measured by his work in the hospital laboratory. After eight months of hospitalization, the patient was discharged with maximum hospital benefit to be followed periodically while still on his medications.

In his search for work, this patient found tremendous obstacles placed in his path by short-sighted employment policies in some industries. Accordingly, the resources of several community agencies were mobilized to help in vocational placement. In this case, the Texas State Employment Commission was found to be very helpful and patient is now employed and doing technical work in his chosen field of physics.

CASE 2. — L.J.: A 23 year-old white male farmer, admitted with complaints of pain in low back and between the shoulder blades of eight years duration. Examination revealed a well developed and well nourished white male, who walked with a slight stooping posture. The cervical spine was supple. Chest expansion was one inch. There was a moderate upper thoracic kyphosis. There was flattening of the normal lumbar curve, with spasm of the paravertebral spinal muscles and tenderness over both sacro-iliac joints. Laboratory findings were within normal limits except for the sedimentation rate, which was elevated in the 30 to 40 millimeter range throughout hospitalization. X-rays of the spine were consistent with the diagnosis of rheumatoid spondylitis. On psychological examination, this man presented the characteristic picture found in these patients. He claimed never to get mad. "When I get mad, I just walk off." His projective tests reflected some of the characteristic fantasies about his body. Unconsciously, he views himself as some kind of a hollow container. Inside he felt that there was weaker, uncontrolled material which had to be controlled and contained by some kind of rigid exterior. He also emphasized the intense narcissistic value of the body and indicated hidden desires to display his body. It was found that the patient had a high intelligence quotient.

The management of this patient, again keeping in mind the total clinical and personality findings, included: 1. correction of foci of infection including Dental treatment, Urological and Ear, Nose and Throat work-up; 2. physical therapy, including moist air cabinet; 3. corrective therapy for breathing and posture exercises; 4. educational therapy for general studies and exploration of capacity for commercial subjects, and 5. vocational guidance. After two months of hospitalization this patient was discharged symptom free. By conscientious application in Educational Therapy and the ability to pass a series of tests (General Education Development) presented by the State Educational Agency, he had earned his high school diploma. The patient became interested in commercial work during his stay in the hospital and it was felt that the long term prognosis was improved considerably by this ability to rechannel his vocational goal from that of farming. He was referred to the State Rehabilitation Agency and a course of study in a local business school was arranged.

CASE 3. — W.C.: A 29 year-old white railroad clerk and a World War II Navy veteran, who first noted pain and stiffness in his neck and upper spine eight years prior to admission while on a navy aircraft carrier. Beginning two years prior to admission he noted involvement of both hips with gradually increasing severity

of symptoms in these joints. The patient also had had several attacks of gall bladder disease with one episode of jaundice during which he had a remission of his arthritis symptoms. Examination revealed a well developed, and well nourished white male with low grade fever, appearing chronically ill and unable to walk because of pain and hip contractures. There was marked stiffness of his neck, back, and hips with flexion deformities of the latter. There was moderate kyphosis of the dorsal spine and marked limitation of chest expansion. X-rays indicated an advanced stage of rheumatoid spondylitis with hip involvement. The sedimentation rates were in the 30 to 40 millimeter range.

In many essential respects, this patient was typical of our composite arthritic patient. He reported active interest in feminine duties, such as cooking, house cleaning and flower raising. At the same time he had been an amateur boxing champion and had thought of a professional career. His projective tests indicated extremely strong exhibitionistic needs. There was high value placed on the body and its beauty. There was much guilt concerning the forbidden aspect of enjoying one's body. Overtly, he denies this exhibitionism with a quiet retiring manner and a complaint attitude. Despite the fact that he was a boxer, he describes himself as being without anger. "I never get mad anymore. It takes a lot to get me mad."

The management of this patient included: 1. acceptance of the patient and his symptoms without question; 2. physical therapy including moist air cabinet daily; 3. corrective therapy for general conditioning and posture exercises; 4. x-ray irradiation with 600 r was given to both hips and lumbosacral spine; 5. intravenous procaine was given for control of pain; 6. a special diathermy bed was constructed for intermittent heat to his back; 7. Cortisone was given in divided dosage of 300 milligrams daily without benefit. The medication was stopped after toxic manifestations appeared; 8. patient was referred to the orthopedic service for bilateral arthroplasty using Judet type nylon prosthesis, following which the patient was ambulated under supervision in corrective therapy, and 9. cholecystectomy was performed before discharge from the hospital. The patient was discharged ambulatory with the aid of crutches after nineteen months of hospitalization. He was able to return to work as a sports promoter in his home town.

Summary

In summary, 25 patients with rheumatoid spondylitis on our Service were evaluated psychologically by means of intensive interview technique and projective testing. The typical findings have been presented and further data with "controls" lend weight to the credibility of this study. The total management of 3 patients with rheumatoid spondylitis is described. Physical measures, pharmaceutical and surgical management may all be required to return the patient to a productive status. Personality evaluation, as reported above, has been of material assistance to the physiatrist by making possible more adequate understanding of the patient and his problems. This has resulted in increased effectiveness in the total treatment program and a higher percentage of patients returned to productive living. Vocational guidance and placement also play an important role in the prognosis.

Discussion

Lt. Col. Richard H. B. Dear (New York, N. Y.): This team paper from the Houston Veterans Administration group emphasizes the necessity of delving into a rheumatoid patient's mental makeup, in addition to complete treatment of the physical complaints in order to restore the individual to maximal earning capacity and happiness. The patient through self-enlightenment probably benefits most from the searchlights focused on his subterranean mental crazy-quilt pattern. The physical medicine treatment program, as was brought out, should be thorough and varied, including use of cortone when necessary, to suit the individual's symptomatology. Of help to verify returning motivation may be the batteries of clinical psychological tests mentioned. Unless there is mature evaluation of these by a psychiatrist, as has been done in this paper, one can go adrift and find more "flotsam and jetsam" than actually exists. Many of us remember rheumatoid individuals similar to those described in the paper who rebel on the inside but exteriorly superficially appear quite receptive to the world. This paper adds to the accumulating literature on the mental makeup of the type of individual who may be prone to develop rheumatoid arthritis with his or her emotional (endocrine) background. Of interest is the exhibitionistic and voyeuristic trend and feminine parent dominance discovered. These mental evaluation techniques help in the total rehabilitation and restoration of the individual.

Evaluation Of Treatment Of Duodenal And Gastric Ulcers In Physical Medicine And Rehabilitation Service

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This article presents the results of a program which we introduced in our Physical Medicine Rehabilitation Service for a specific group of patients. The program was initiated on prescription, written by the Physical Medicine Rehabilitation Service, for patients with gastric or duodenal ulcers, referred by the Medical Service of our hospital from January, 1947 to January, 1951.

At the beginning of this program, from time to time we requested that patients be referred to the Physical Medicine Rehabilitation Service. Within a few months, this was no longer necessary, since patients were being referred to our Service from the various departments of the hospital without solicitation.

The role of the psychologic factors in the pathogenesis of peptic ulcers is based on Alexander's work.[1, 2] The sequence of events may be pictured in the following manner:

(1) There is a conflict in these patients, at the unconscious level, between dependent needs (receiving) and struggles for independence (giving); (2) in these individuals there is a frustration of their dependent needs; (3) the conflict is then resolved (an inappropriate manner) in a regressive fashion by the individual's returning to the level of the suckling infant, and the stomach is in an almost continuous state of readiness for receiving food (security and love), and (4) the end result is a structural change in the upper gastro-intestinal tract, demonstrated clinically as peptic ulcer.

There is found a hypersecretion of all gastric elements in patients with duodenal and gastrojejunal ulcers. This physiologic unbalance has been known for years but the reason for it has eluded us. One clue perhaps has been provided in the publications pointing to the occurrence of ulcer formation, hemorrhage, and perforation during ACTH treatment. Almost all these complications have occurred when the ACTH has been given for at least seven days. This suggests that a chronic stress pattern must exist before these events can occur for Selye[12] has shown that the verum electrolyte pattern in chronic stress situations is similar to that following the repeated administration of ACTH. His work reveals that chronic stress, no matter of what type, will lead to release by the pituitary gland secondarily to the release of adrenal cortical steroids. More recent work shows that stress of any kind—emotional or physical—will lead to the release of a humoral substance from the hypothalamus, which in turn stimulates the pituitary to secrete ACTH.[7]

The recent war illuminated the relationship between chronic stress (alarm) to gastro-intestinal ulceration by the increased incidence of peptic ulcers and perforation in England, Germany, and Switzerland.[8]

The classical concept of the relationship between the emotion (stress) and

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gastro-intestinal ulceration has stressed that the former affects the latter via the vagus nerve—a neurogenic concept postulated by Cushing in 1932.[4] However, a possible humoral mechanism was revealed by Edkins and Tweedy[9] in 1909 when they showed that the isolated antrum with its acid-stimulating cells released a stimulant (gastrin? hormone?) to the acid secreting cells of the fundus. Dragstedt et al,[5] Schilling, and Pearse[10] have more recently favored evidence supporting this concept. Of great interest is the recent report of S. I. Gray et al[7], who found that ACTH may cause in normal persons an increase in gastric and peptic activity to levels usually seen in patients with duodenal ulcers. The maximum effect was observed after 7-14 days of therapy. They point out that the effect of ACTH on the stomach is due to the secondary release of adrenal cortical steroids rather than the primary action of ACTH.[7]

Heller has shown that the focal hemorrhages occur in the stomach following brain stem lesions whether they occur before or after vagotomy. Therefore, we have evidence to show that in spite of vagal section, there is still a pathway left over which normal or abnormal impulses from the hypothalamus can travel to affect harmful actions on the stomach.

Hence, in brief it can be said that stress of any kind can cause the hypothalamus to secrete a humoral substance which in turn stimulates the pituitary gland to release ACTH. This is turn brings about a release of adrenal cortical steroids (cortisone, e.g.) which supposedly cause the acid secretory cells of the stomach to pour out acid and pepsin. It also has recently been shown by Barclay et al[1], that in the wall of the stomach there are submucous plexuses of arteriovenous anastomoses. They state that the opening of these anastomoses acts as a shunt and in effect, stops the entire circulation through small vessels of mucous membrane, particularly when the stomach is handled. They present evidence indicating that these anastomoses are under the influence of the autonomic nervous system, i.e., when the sympathetic innervation to the stomach was interrupted by means of a spinal block, these shunts did not open. It is possible, in view of these findings, that tensions of anxiety states are capable of producing an opening of these shunts, which in turn would theoretically produce an ischemia of the mucous membrane of the stomach. Hence it is important to attempt to ameliorate these tension states. There is no evidence at present to show whether this ischemia would be a generalized or localized phenomenon.

On the basis of this evidence, which shows that emotional stress can provoke into action both a humoral and neurogenic mechanism capable of producing hypersecretion of all the gastric elements, the aim of our therapy has been to bring about a decrease in this hypersecretion by the use of those physical medicine and rehabilitation modalities that would bring about a release of the emotional stresses in the patient.

Our Physical Medicine Rehabilitation program is accepted by the patients as a "receiving" symbol. However, this is not the ultimate aim of treatment, since the individual must also be guided in adjusting himself to his environment or work. This is important in order to prevent tension from arising.

We were especially concerned with the results of our treatment on the anxiety state that existed in these patients. The clinical manifestations of this anxiety state were mild in some and very marked in others.[8] The patients were referred to the Physical Medicine Rehabilitation Service as soon as a diagnosis was established. The ulcer cases with complications were referred after these were under control. The prescription usually written was one for either tonic or relaxation therapy, or both. The physical medicine rehabilitation treatment was usually given concurrently with medical therapy for the peptic ulcer. The medical therapy consisted of modified Sippy regimen, which was gradually liberalized over a period of about four weeks, by which time the patient was usually on a bland diet. Each

patient was seen by the physiatrist, who referred him to one or more sections of the Physical Medicine Rehabilitation Service. Almost always the patients were referred to Corrective Therapy and Occupational Therapy, and less frequently to Manual Arts Therapy and Educational Therapy Sections. The latter two sections were indicated when a specific rehabilitation problem was involved. Usually the specific therapeutic value was obtained in the Corrective Therapy and Occupational Therapy Sections.

The following descriptions of treatment given in the Corrective Therapy and Occupational Therapy Sections were made by Mr. E. W. Mason, Chief, Corrective Therapy and Mrs. B. E. Thomas, Chief, Occupational Therapy. The patient is referred to Corrective Therapy by the physiatrist with a prescription calling for relaxation and breathing exercises. This treatment is given to each patient separately with specific attention to the individual needs and problems encountered. These relaxation and deep breathing exercises are given daily and some patients are often given them twice a day. The entire procedure takes about twenty minutes of the therapist's time for instruction. The patient is instructed to practice it for himself for twenty minutes to one-half hour and sometimes takes a short nap while applying himself. It is felt that maximum results are obtained with an average treatment period of about two weeks. Some patients respond more readily than others, and the usual range of treatment varies from approximately five to twenty days. This maximum pertains only to the results received from the instruction and not from the actual application. It is felt that the benefits from the application may continue an indefinite period of time if the patient will apply himself after receiving proper instruction.

It might be mentioned here that the breathing exercises are felt to be of great benefit as a part of relaxation as well as for tonic therapy also. The type of relaxation given to patients is that considered as "progressive relaxation" by authors such as Rathbone[10] and Jacobson.[9] This may be compared in passing to the type designed to obtain a maximum of rest and relaxation through proper shifting and spreading of body weight for relief of pressure and muscle strain. This progressive type also emphasizes relief of mental as well as muscular strain. It is felt to have a carry-over value through awareness awakened in the patient by specific instruction he receives. There are times when both types are given if the need is indicated.

1.—Be sure that the patient is in a comfortable position on a broad and padded surface that does not allow sagging of the weight. The position should be flat on the back when possible. Use towels or pillows to bolster weight and relieve strain at certain joints or areas. Instruct the patient to distribute his weight equally and try to "sink" down through the mattress. At intervals throughout the treatment stress this and encourage him to let the head fall back, the shoulders slump, the hips sag, and the legs "flop" loosely.

2.—Localized residual muscular tension is relieved by passive movements of the arms and legs involved or by moving the whole body (shaking). This is similar to what Paul Roland chooses to call the "relaxation response technique."[11] Relaxation of parts used immediately following active movements and muscle setting, helps to bring about an awareness of muscular tension and how to release it. Stress is put upon release of muscular tension at what might be called the "hinge areas" after movements using those "hinges." These areas include the jaws, neck at the spine, shoulder girdle where they hinge at the spine, shoulder joints, elbow joints, wrist joints, and ankle joints. The point at which the rib cage joins the spine and the sternum also forms a type of hinge joint which is moved with deep breathing exercises.

3.—An awareness of the difference between a state of muscular tension and that of relaxation must be developed. Particular stress is given to parts and

areas showing the presence of extreme tension. Manipulation of the muscles that are rigid helps the patient to overcome local tension in many cases. Emphasis must be put on complete relaxation following exercise movements. A full range of joint movement should be performed and the positions held for several seconds before relaxing. Movements should be done two or three times and motions should be performed very slowly. The most strenuous movements should be given first; these include the following: raising and turning the head, shoulder elevation and shrugs, trunk raising, back arches, pelvic tilts, hip shrugs, buttock squeezes, leg rotation, muscle setting of the entire body with weight on the heels and back, straight arm raises through a range of 180 degrees, elbow flexion and extension, and muscle setting of the face.

4.—Deep and slow breathing helps to alleviate restricted breathing resulting from residual tension of the chest muscles. Such breathing tends to relieve residual tension generally, it is noted. It is found very difficult to tense the muscles or keep them tense at the time when expiration is about completed. It is noticed that during the entire process of deep breathing, muscular tension decreases considerably. Deep and regular breathing encourages the simulated conditions of sleep and seems to bring about some of the same type of rest and relaxation that occur during sleep. These breathing exercises, serving as a form of tonic therapy, are followed by signs that indicate organic and systemic efficiency are increased. It seems that general body processes improve and that the phenomena of relaxation is better as a natural consequence.

5.—It is noted that mental tension must also subside or decrease or muscular tension will persist to some degree.

At initial contacts, the patients are found to be most negativistic and more hostile than any other group. Changes become apparent from the second day of treatment and continue to be noted through termination of treatment. Negativism and hostility decreases. Residual tension also decreases. Chest expansion increases and breathing becomes deeper, more regular, and less abdominal in nature. The complexion improves, with more normal coloring noted. Extreme nervous habits and muscle ties become almost negligible. Complaints of interference in systemic functions become minimal. Complaints of pain decrease. Patients state that it is easier to divert their thoughts to something pleasant. Most of those who could not rest on their backs at the beginning of treatment now find it possible to do so. Patients relate that they go to sleep quicker and sleep longer and sounder and that interrupted sleep disappears. Nearly all patients say that anytime they lie down or have time to rest, they immediately think of the instructions they have received and unconsciously apply them.

In general, it may be said that relaxation and deep breathing exercises bring relief of the tension states. In the treatment of general medical and surgical patients in the occupational therapy clinic, the therapist must of necessity have a particular kind of knowledge, a need of special precautions, and some understanding of psychosomatic medicine. With ulcer patients, there must be a combination of psychiatric and medical treatment. The therapist must be aware of this at all times and plan a program around both the mental and physical needs of this type of patient. The physiatrist, in sending a patient to the occupational therapy clinic, would prescribe "tonic therapy." This is designed to keep the mind *purposefully* engaged, since the aim of occupational therapy is to divert the interest of the patient from his body through the selection of a proper occupation.

Work should be given which will sustain interest on an individual basis, and, of course, craft should be secondary to the mental occupation desired. It must be a graded type of activity, with the therapist making verbal and written reports to the physiatrist concerning the patient's progress, attitude and tolerance whenever progression or regression in the patient's condition is noted. The

patient will be put in group work where he will learn to relax by seeing the greater difficulties of other patients and where he will be directed toward resocialization. He must have contact and harmony with reality, increasing his self-direction. He should have some choice throughout his program and a fair balance between success and failure, which is a necessary part of learning.

Actually, in treating the ulcer patient, the most important element is the *attitude* toward the work prescribed—the attitude of the physician, the therapist, and the patient. The physician must be as professional and genuine in prescribing occupational therapy as in any other form of treatment, so that the patient will fully cooperate with the therapist. The therapist in return must amplify this attitude so that this transference of feeling may be shown in the patients' reactions. Then will come the question of motivation—of stimulating the desire on the part of the patient to attain an achievable objective. This must be accomplished through the ability of the occupational therapist to persuade the patient that the objective is possible, if he will fully cooperate in the prescribed steps of the treatment.

Through the use of a variety of media, such as plastics, woodwork, art, stenciling, jewelry, leather, weaving, etc., specifically selected to meet the individual needs and inclinations of the patient, the nervous manifestations noted on initial interview of the ulcer patient are gradually alleviated and at times disappear altogether. When the patient's interest and absorption in an activity is gained by the therapist, then tense facial muscles relax and the frequent nervous twitching of the mouth is relieved. The production of creative work is an outlet for physical and mental energy. Some of the patients no longer gaze blankly into space or sit rigid with self-consciousness. They have forgotten self in the expressing of creative ideas.

In summarizing, it can be said that the therapist is working toward three goals in treating the tense ulcer patient. First, an externalization of interests, thus diverting the mind of the patient from his illness toward a new interest, a fascinating hobby, or possibly a new vocation. Second, an increase in his work tolerance, starting slowly with only a few minutes of some sedative type of activity, increasing the time and gradually changing the activity to one of greater significance and more purposeful character. Third, resocialization, drawing the patient into a group situation. In all of this there can be no compulsion. Men resent persuasion but will follow a leader. The therapist must be the leader and establish a rapport between herself or himself and the patient if any value from the treatment is to be gained. As has so aptly been said, "An occupational therapist must have faith in the profession, joy in craftsmanship, capacity for quick friendship, and generous readiness to give the time and the trouble to understand *each* individual." We must ever keep in mind Lord Horder's advice that "We must divert, re-educate, and re-occupy both mind and body."

From January 1947 to present time, we have had under our care, 204 cases.

The age incidence has been represented in Table 1. It will be noted that the greater number of peptic ulcers are in the usual 20 to 40 year group.

TABLE 1

AGE GROUP	DUODENAL ULCERS	GASTRIC ULCERS	TOTAL
20 - 30 years	97	11	108
31 - 40 years	46	1	47
41 - 50 years	20	3	23
Over 50 years	20	6	26
TOTAL	183	21	204

Table 2 shows those who received Corrective Therapy or Occupational Therapy and those who received both. It may be noted that most of the patients received combined treatment.

TABLE 2

AGE GROUP	Patients Treated in OT and CT	Patients Treated in OT only	Patients Treated in CT only
20 - 30 years	62	42	4
31 - 40 years	30	14	3
41 - 50 years	15	7	1
Over 50 years	17	9	0
TOTAL	124	72	8

Neuropsychiatric consultations were requested on 156 of the total number of 204 patients. In general, the neuropsychiatric diagnosis was anxiety state

with somatization reaction. In a few the impression was schizoid personality, passive dependency, inadequate personality, depressive reaction, and emotional instability.

Table 3 shows the results in this group of patients. Our impression has been that the patients in the older age group, in general, do not respond as well to the Physical Medicine Rehabilitation program as well as the younger age group.

TABLE 3

AGE GROUP	IMPROVED	UNCHANGED
20 - 30 years	101	7
31 - 40 years	45	2
41 - 50 years	22	1
Over 50 years	22	4
TOTAL	190	14

We considered as improved all those cases who at the time of discharge from the Physical Medicine Rehabilitation Service had no complaints whatsoever. Considered as unchanged were those who had the slightest symptoms referable to the gastro-intestinal tract or general condition such as anxiety, tenseness, and inability to relax. All the patients of the Medical Service in the hospital, with gastro-intestinal complaints, received treatment in Physical Medicine Rehabilitation Service. Only the 204 cases which showed positive confirmatory evidence by x-ray findings of gastric or duodenal ulcers were considered in this paper.

It is interesting to note the abstract report of the work of Hamilton M. Moody in the Psychiatry Information Bulletin of the Veterans Administration. This investigator compared the effects of autohypnosis for the induction of a relaxed state as the sole means of treatment in one group of peptic ulcer patients and compared the results with another group of peptic ulcer patients treated by standard medical therapy. He noted a slight advantage in favor of hypnotic therapy in the reduction of peptic ulcer symptoms. This difference would have occurred by change less than once in one hundred such studies.

It has been shown that occupational therapy and corrective therapy are of a definite benefit to peptic ulcer patients and it is our belief, from this report, that they are a definite adjunct in the treatment of the peptic ulcer.

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MEDICAL SUPERVISION OF PHYSICAL THERAPY

The role of the physical therapist in relation to that of the physician is one of the issues in the field of physical therapy. This controversy has arisen because physical therapy is undergoing a transition from a position on the fringe of medical practice to a position of integration with all other phases of medicine. This readjustment must be made to improve the medical care of patients with physical disabilities. The changes made necessary by this relocation are not always easily made. The establishment of physical medicine and rehabilitation in modern medicine has resulted in more aggressive treatment of physical disabilities. Aggressive treatment carries with it not only increased possibilities for recovery but also increased liability of injury to the patient. Close medical observation is required in order to maintain safe, yet progressive, therapy.

The central role in physical therapy is played by the physical therapist. However, this role needs to be defined clearly and its limits determined. The physical therapist is trained as a specialist in the application of the techniques of physical therapy. In order that the physical therapist might understand the use of these techniques and the variations of their application, the training course has included a general knowledge of the diseases and disabilities with which the therapist will be concerned. The teaching of the diseases and disabilities treated by physical therapy is a broad survey of the field rather than intensive teaching of each condition. No attempt has been made to present all of the ramifications of the disease. Since proper diagnosis, prognosis, and prescription for treatment depend on the complete understanding of the patient's ailment, these must be made by the physician who is trained for that phase of medical care. When the diagnosis has been made and the treatment prescribed, then the physical therapist can use her specialized knowledge and skill to insure maximum therapy.

The physician plays a necessary role in all physical therapy. If rehabilitation is going to be achieved for all patients treated for physical handicaps, the physician must maintain his supervision of the patient and the treatment. It is not adequate to refer a patient for physical therapy and then discontinue supervision of that patient. Prescriptions should be precise. The patient should be checked at frequent intervals to observe his re-

sponse and the prescription for treatment should be altered with the progress of the patient. All physicians using physical therapy should be thoroughly acquainted with the methods used and results obtained. Physicians uninterested or untrained in physical therapy or too busy to provide this necessary supervision should not undertake it any more than they would attempt specialized therapy in any other field where they have inadequate time or training.

In this transition period, certain physicians have been slow to recognize this desirable professional relationship. These physicians shirk their responsibilities for medical supervision of physical therapists. They request, or on occasion even demand, that the therapist prescribe, alter, and discontinue treatment as necessary. Such requests or referrals for therapy do not provide adequate information concerning the patient's condition, his limitations, nor the reasonable goal to be achieved. In making such a referral, the physician is asking the physical therapist to undertake the practice of medicine for which he is neither trained nor licensed. The conscientious physical therapist finds this situation intolerable because he recognizes that the responsibility demanded of him exceeds his training. Since often the physical therapist is financially, as well as professionally, under the direction of the physician, he may be coerced into assuming this responsibility against his better judgment.

On the other hand, some physical therapists do not understand the need for and resent medical supervision. Their training and their grasp of the practice of medicine has not been extensive enough for them to recognize their limitations. These therapists need further education concerning their relationship to the field of medicine. Further education concerning the desirability for direct medical supervision of physical therapy is needed also for lay sponsors and hospital administrators who establish physical therapy clinics.

To assist in defining the roles of the physician and of the physical therapist, it is proposed that the physician should provide direct supervision of all physical therapy. The following definition of direct supervision is suggested.

The term "direct supervision" is interpreted to mean that the physician responsible for the treatment has a complete understanding of all aspects and phases of the treatment, that he is acquainted with the facilities and methods used by the physical therapist, and that he has prescribed the details of the treatment to be used. "Direct supervision" means further that the physician is available to observe the patient and his response to the treatment as may be necessary, and to alter the prescription for treatment according to the needs of the patient.

"Direct supervision" requires, therefore, that the physician who is supervising the treatment have a continuing close contact with the physical therapist by whom his patients are treated. A therapist, in an office of his own, to whom patients are referred by the prescriptions of physicians would not come under the category of "direct supervision." A physical therapy clinic which does not have a physician or a group of physicians available for direction of medical treatment does not come under the category of "direct supervision." Arrangements should be formalized for the specific responsibility for medical supervision of each physical therapist or each physical therapy clinic. Clinics or therapists who have not formally established responsibility for medical supervision cannot be said to be under direct medical supervision.

It is urged that physicians and physical therapists strive to have the principles of this definition adopted as the basis for establishing any physical therapy facility. It would be desirable for physician and therapist organizations to go on record supporting the principle of direct medical supervision of all physical therapy. The establishment of this professional relationship in all physical therapy facilities will improve rehabilitation services throughout the country.

. . . ANNUAL REPORTS . . .

American Congress of Physical Medicine and Rehabilitation

American Society of Physical Medicine and Rehabilitation

American Registry of Physical Therapists

Report of the Finance Committee

The report of our auditor which follows indicates that for the year ending December 31, 1952, the American Congress of Physical Medicine and Rehabilitation continued to operate on a sound financial basis.

H. Worley Kendell, M.D.
Walter M. Solomon, M.D.
Charles S. Wise, M.D.

Report on Examination For the Year Ended December 31, 1952

May 8, 1953.

Board of Governors,
American Congress of Physical Medicine
and Rehabilitation,
30 North Michigan Avenue,
Chicago, Illinois.

Dear Sirs:

We have examined the balance sheet of the American Congress of Physical Medicine and Rehabilitation as of December 31, 1952, and the related summary of net income and surplus for the year then ended. Our examination was made in accordance with generally accepted auditing standards and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances, except as stated in the following paragraph.

We did not verify the income from subscriptions to "Archives," a magazine published monthly by the Congress, because it was not considered practicable. However, we tested the correctness of the subscription income recorded on the books by reference to available supporting data.

Based on our examination, limited to exclude verification of "Archives" subscription income, in our opinion, the accompanying balance sheet and summary of net income and surplus present fairly the financial position of the American Congress of Physical Medicine and Rehabilitation at December 31, 1952 and the results of its operations for the year then ended in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

We submit the following exhibits and schedules:

Exhibit

A.—Balance Sheet, December 31, 1952.
Schedule
1—Accounts Receivable — Membership Dues.

B—Summary of Net Income and Surplus for the Year Ended December 31, 1952.
Schedule
1—Direct Convention Expenses.

Yours truly,
George Rossetter & Co.

Exhibit A

American Congress of Physical Medicine and Rehabilitation
(Incorporated in Illinois — Not for Profit)
Balance Sheet, December 31, 1952

Assets

Current Assets:		
Cash in bank and on hand		$ 9,964.30
Accounts receivable:		
Advertisers and exhibitors	$1,389.37	
Membership dues—Schedule 1	120.00	
American Registry of Physical Therapists	1,817.06	
American Board of Physical Medicine and Rehabilitation	95.88	
American Society of Physical Medicine and Rehabilitation	105.87	3,528.18
Investment in United States Savings bonds, Series G—at cost		30,000.00
Accrued interest		257.47

Deposit at United States Post Office		50.00
"Archives" — paper stock and envelopes		1,284.70
Prepaid dues—International Federation of Physical Medicine		154.28
Total		$45,238.93

Liabilities

Current Liabilities:		
Accounts payable		$ 759.50
Employees' income tax withheld		340.00
Pay roll taxes		19.53
Dr. John S. Coulter Memorial Fund		455.00
Subscriptions to "Archives" —unexpired portion		8,286.04
Dues collected in advance —year 1953		360.00
Total current liabilities		$10,220.07
Surplus, per Exhibit B		35,018.86
Total		$45,238.93

Exhibit B

American Congress of Physical Medicine and Rehabilitation

Summary of Net Income and Surplus for the Year Ended December 31, 1952

Income:		
Membership dues		$10,520.00
"Archives":		
Advertising	$ 8,860.89	
Subscriptions	13,882.96	
Sale of cuts, etc.	1,650.27	24,394.12
Interest on United States Government securities		688.80
Convention income:		
Exhibits	$ 9,000.00	
Special instruction course	1,620.00	
Total	$10,620.00	
Direct convention expenses—Schedule 1	8,945.09	
Convention income —net		1,674.91
Miscellaneous		33.57
Total income		$37,311.40
Expenses:		
Office salaries and expenses	$24,637.09	
Printing—"Archives"	18,060.48	
Cuts, half-tones, electros, etc.	1,190.20	
Pay roll taxes	218.41	
Professional fees	1,515.52	
Provision for loss on uncollectible accounts	49.99	
Educational conference	218.95	
Sundry	543.37	
Total expenses	$46,434.01	
Less share of office expense billed to:		
American Board of Physical Medicine and Rehabilitation	$ 250.00	
American Society of Physical Medicine and Rehabilitation	120.00	
American Registry of Physical Therapists	8,800.00	9,170.00
Expenses—net		37,264.01
Net income for the year		$ 47.39
Surplus, December 31, 1951, as previously reported	$37,171.47	
Adjustment of unearned subscription income, December 31, 1951	2,200.00	
Surplus, December 31, 1951, as adjusted		34,971.47
Surplus, December 31, 1952		$35,018.86

AMERICAN SOCIETY OF PHYSICAL MEDICINE AND REHABILITATION

Report on Examination For the Year Ended December 31, 1952

May 8, 1953.

Board of Governors,
American Society of Physical Medicine and Rehabilitation,
30 North Michigan Avenue,
Chicago, Illinois.

Dear Sirs:

We have examined the balance sheet of the American Society of Physical Medicine and Rehabilitation as of December 31, 1952, and the related statement of net income and surplus for the year then ended. Our examination was made in accordance with generally accepted auditing standards and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the accompanying balance sheet and statement of net income and surplus present

fairly the financial position of the American Society of Physical Medicine and Rehabilitation at December 31, 1952, and the results of its operations for the year then ended in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

We submit the following exhibits:

Exhibit

A—Balance Sheet, December 31, 1952.

B—Statement of Net Income and Surplus for Year Ended December 31, 1952.

Yours truly,

George Rossetter & Co.

Exhibit A

American Society of Physical Medicine and Rehabilitation

(Incorporated in Illinois — Not for Profit)

Balance Sheet, December 31, 1952

Assets

Current Assets:	
Cash—Michigan Avenue National Bank of Chicago	$2,976.68
Accounts receivable —members	55.00
Total	$3,031.68
Liabilities	
Current Liabilities:	
Accounts payable — American Congress of Physical Medicine and Rehabilitation	$ 105.87
Dues collected in advance	65.00
Total current liabilities	$ 170.87
Surplus, per Exhibit B	2,860.81
Total	$3,031.68

Exhibit B

American Society of Physical Medicine and Rehabilitation

Statement of Net Income and Surplus for the Year Ended December 31, 1952

Income:		
Initiation fees		$ 180.00
Members' dues		720.00
Total income		$ 900.00
Expenses:		
Share of office expense billed by American Congress of Physical Medicine and Rehabilitation	$120.00	
Professional fees	318.82	
Banquet — annual meeting —net	142.90	
Fidelity bond premium	10.00	
Office supplies	143.75	
Miscellaneous	1.18	
Total expenses		736.65
Net income for the year		$ 163.35
Surplus at beginning of the year		2,697.46
Surplus at end of the year		$2,860.81

AMERICAN REGISTRY OF PHYSICAL THERAPISTS

Annual Report
January 1 - December 31, 1952.

The major activities of the Registry follow the purposes for which it was organized; namely, to promote the art and science of medicine through an understanding and utilization of the functions and procedures of physical medicine in the prevention, treatment or alleviation of human ailments and the maintenance of or restoration to health; to maintain a list of physical therapists competent and qualified to administer adequately physical therapy under the prescription, direction and supervision of licensed physicians, and to promote a widespread utilization of such list to the end that the facilities and methods employed in physical therapy may effectively augment the services of American medicine. All of its activities represent an effort on the part of the Registry to carry out its original purposes. No phase of service is overlooked in this effort.

The By-Laws of the Registry were changed to enlarge the Board. The Board now consists of nine members. Two members, namely Miss Margaret Moore and Miss Elizabeth C. Wood, serving on the Board represent the American Physical Therapy Association. Their terms of service expire December 31, 1953. Dr. Robert L. Bennett was appointed to serve on the Board for a period of seven years beginning January 1, 1953.

At the Interim Meeting, April 19, 1952, Hotel Roosevelt, New York City, the following items were considered:

Possible revision of By-Laws.

Discussion of the use of the Registry examination as the qualifying examination for state registration.

Discussion of granting, on an individual basis, senior registration to therapists in good standing in the junior classification. This registration is to be granted without examination. Therapists in the junior classification were requested to refile an application and bring the record of their experience and activity in the field of physical therapy up to date. A special committee was appointed to review these applications and final decision will be made at a later date.

Revision of the Registry booklet of information "Your Registry" to incorporate changes suggested by the Board.

Annual certificate of registration to be replaced by wallet-size membership card. The large certificate will be issued on initial registration only.

Discussion of the possibility of establish-

ing an American Registry of Therapists to include corrective, vocational, educational, and manual arts therapists. No definite Board action was taken.

At the Annual Meeting, August 27, 1952, Hotel Roosevelt, New York City, the following motions were passed:

Effective with September 1, 1952, the Registry is to pay the American Congress of Physical Medicine and Rehabilitation the sum of $1000 per month for expenses. (This is the first increase since 1936).

Three committees were established: Committee to Consider a National Board of Physical Therapy; Committee on Ethics, and Committee on Evaluation of Foreign Schools.

Elimination of "condition" grade in the Registry examination; only "pass" and "fail" to be used.

Any changes in policy of the Registry to be reported to the medical and technical directors of schools if and when they are directly concerned with such changes.

A number of special problems were considered and several interim actions were completed by the Registry Board in 1952. The following registrations were cancelled: Miss B. Lee Katz, 12400 Ohio Ave., Los Angeles 25, Calif., and Mr. William Schwarz, 2412 Jefferson St., Harrisburg, Pa.

The following members were reinstated: Miss Ann Croy, 51 Hamilton Place, New York, N. Y.; Miss Opal Ingraham, 225 14th St. W., Charlottesville, Va.; Mrs. Rosemary Kolde, 1045 Gothic Way, Pomona, Calif.; Mr. Frederick Mann, The Chickasha Hospital and Clinic, Chickasha, Okla., and Mrs. Helen B. Vanier, 140 School St., Lebanon, N. H.

The following members have been dropped from the roster of therapists in good standing for non-payment of dues: Jose M. Bayona, Florence Bonander, Berenice Broemser, Ardele Rees Brown, Sibyl Ritchie Cagnacci, Ethel Cocling, Margaret Wallace Conrad, M. Barbara Dee, Nancy Duncan Hertert, Madeline Hildebrand, Verna Sebring Hisey, Marilyn Holloway Horton, Beatrice Johnson, Sister Bibiana Kaluza, David Kaskowitz, Celia Krogh, Frances Stein Kroto, Tressie Martin LaBoskey, Mildred Mitchell Lambrix, William London, Luz Maria Lopetegui, Josephine Maeyama, Madeline Gordon Markel, Barbara Martis, Helen Germer Mae, Addie Porter Moore, Margaret Motch, Francis Mulvihill, Mary Moosmann O'Dowd, George Olson, Miriam Parnham, T. L. Parnham, Nancy Hemphill Pitsch, Vera Postel, Eve Prettyman, Marjorie Priest, Eunice Rhodes, Marie Osterloh Roberts, Dorothy Rolfe, Natalie Ross, Mary Samoff, Laura Sansbury, Virginia Wyatt Scanlon, Joan Schleck, Carol Coggeshall Segar, Lillian Shotter, Vivian Gerhart Sorrelle, Teresa Doda Sparer, Veronica Stephens, Patricia Strong, Katherine Sutherland, Patricia Swanson, Dorothy Tanner, Lois Teesdale, Sarah Tolis, Dorothy Tolleth, Florence Torreano, Alexander Vila, Suzanne Watkins, Ethel Praga Weintraub, Sally Wilhoit, Sophia Wohlner, Enid Olson Woolsey, Lydia Wright, Emily Gillett Young, June McLeod Ziegenbein, and Annette Davis Zykofsky.

The following members have dropped their membership: Rury Bergstrom, Rosemary Johnson Bickett, Carolyn Bowen, Jefferson I. Brown, Mary Colleary, Elizabeth Hall Cousins, Mary Howe Cunningham, Marian Denny, Anna Eden, Christine Good, Emily Griffin, Miriam Brubaker Groff, Ida Hazenhyer, Peggy Hutchinson, Esther Strother Kates, Lidie E. Keffer, Thelma Junker Kemink, Eleanor King, Jeanne Stinson Lucy, Ernest Mann, Mary Gosnell Mann, Clara Croyl Mathews, Joan Law Moore, Erma Cannon Myers, Carolyn Olson, Josephine Perrault, Kathleen Stewart Poulter, Ruth Preston, Martha Mourning Pritchett, Mary Reedy, Ethel Scofield, Helen Shaber, Fanny Short, Lucille Rae Skophammer, Olive Smith, Grace Spillane, Jessie Stevenson, Delice Ball Verstraten, Julia Woodburn, Ruth Woodward, Patience Young, and Gertrude Zollmann.

Certificates Issued According to School of Graduation

Name of School	Number of Graduates Registered
Albany Hospital, Albany, N. Y.	5
Boston University College of Physical Education for Women, Sargent College, Cambridge, Mass.	23
Bouve-Boston School of Physical Education, Medford, Mass.	7
University of California School of Medicine, San Francisco	12
Childrens Hospital, Los Angeles	12
Cleveland Clinic, Bunts Educational Institute, Cleveland	17
College of Medical Evangelists, Los Angeles	19
University of Colorado, Denver	26
Columbia University, College of Physicians and Surgeons, New York City	38
Duke University, Durham, N. C.	14
Hermann Hospital, Houston, Texas	23
State University of Iowa College of Medicine, Iowa City	14
University of Kansas Medical Center, Kansas City, Kan.	17
Mayo Clinic, Rochester, Minn.	26
Medical College of Virginia, Baruch Center of Physical Medicine and Rehabilitation, Richmond, Va.	81
University of Minnesota, Minneapolis	16
New York University, School of Education, New York City	29

Northwestern University Medical School, Chicago	14
Division of Physical Therapy of the School of Auxiliary Medical Services of the University of Pennsylvania, Philadelphia	68
St. Louis University, Division of Health and Hospital Services, St. Louis, Mo.	9
Simmons College, Boston	14
University of Southern California, Los Angeles	14
Stanford University, Stanford University, Calif.	38
University of Texas School of Medicine, Galveston	6
Washington University School of Medicine, St. Louis, Mo.	4
D. T. Watson School of Physiatrics, Leetsdale, Pa.	22
University of Wisconsin Medical School, Madison	26
Medical Department — U. S. Army	
Brooke Army Medical Center, Ft. Sam Houston, Texas	1
Letterman Army Hospital, San Francisco, Calif.	7
Walter Reed Army Hospital, Washington, D. C.	24
TOTAL	626

Number of registrations completed	626
Number of examinations conducted	396
Number of retake examinations conducted	28

The report of the auditor which follows indicates that for the year ending December 31, 1952, the American Registry of Physical Therapists continued to operate on a sound financial basis.

AMERICAN REGISTRY OF PHYSICAL THERAPISTS

Report on Examination For the Year Ended December 31, 1952

May 8, 1953

Board of Registry,
American Registry of Physical Therapists,
30 North Michigan Avenue,
Chicago, Illinois.

Dear Sirs:

We have examined the balance sheet of the American Registry of Physical Therapists as of December 31, 1952, and the related statement of net income and surplus for the year then ended. Our examination was made in accordance with generally accepted auditing standards and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the accompanying balance sheet and statement of net income and surplus present fairly the financial position of the American Registry of Physical Therapists at December 31, 1952, and the results of its operations for the year then ended in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

We submit the following exhibits:

Exhibit

A—Balance Sheet, December 31, 1952.

B—Statement of Net Income and Surplus for the Year Ended December 31, 1952.

Yours truly,
George Rossetter & Co.

Exhibit A

American Registry of Physical Therapists
(Incorporated in Illinois — Not for Profit)
Balance Sheet, December 31, 1952

Assets		
Current Assets:		
Cash on deposit		$12,709.31
Accounts receivable — dues and registration	$1,100.00	
Less reserve for possible losses	300.00	800.00
United States Savings bonds, Series G—at cost		35,000.00
Accrued interest		273.21
Total		$48,782.52
Liabilities		
Current Liabilities:		
Accounts payable:		
American Congress of Physical Medicine and Rehabilitation	$1,817.06	
Other	420.40	$ 2,237.46
Accrued federal excise tax		5.40
Dues collected in advance —year 1953		13,243.00
Deposits with applications (subject to refund if applications are rejected)		30.00
Total current liabilities		$15,515.86
Surplus, per Exhibit B		33,266.66
Total		$48,782.52

Exhibit B

American Registry of Physical Therapists
Statement of Net Income and Surplus
for the Year Ended December 31, 1952

Income:		
Dues		$13,251.00
Registration fees		7,955.00
Sales:		
Pins	$ 814.50	
Emblems	404.50	
Directory	273.00	1,492.00
Interest on United States bonds		762.80
Miscellaneous		37.16
Total income		$23,497.96
Expenses:		
Share of office expense billed by American Congress of Physical Medicine and Rehabilitation	$8,800.00	

Printing and multigraphing	490.22	Designing certificate	153.27
Directory	1,458.50	New examination	1,000.00
Examinations—supervision and grading	435.40	Miscellaneous	36.34
Board meeting	375.06	Total expenses	17,432.08
Purchase of pins	505.00	Net income for the year	$ 6,065.88
Office supplies	956.35	Surplus at beginning of the year	27,200.78
Special conferences	1,577.12	Surplus at end of the year	$33,266.66
Postage	12.25		
Office equipment	517.61		
Fidelity bond premium	25.00		
Professional fees	720.53		
Provision for losses on uncollectible dues	212.00		
Purchase of emblems	157.43		

Respectfully submitted,
AMERICAN REGISTRY OF PHYSICAL THERAPISTS
Dorothea C. Augustin, Registrar

ANNUAL ESSAY AWARD . . .

The papers that have been submitted are now in the hands of the Committee. Final decision will be made and announced within the very near future.

Committee on Prize Lecture
William D. Paul, Chairman
Frederic T. Jung
Allen Russek
Arthur L. Watkins

BODY MECHANICS GROUP TO MEET

The Second Annual Meeting of the Special Interest Group for Body Mechanics will be held at The Chicago Clinic of Physical Medicine, 6970 N. Clark Street, Chicago, on Sunday, August 30, 1953, 9:00 A.M. to 6:00 P.M. Reservations for this meeting will be necessary and must be in before August 25, 1953. Send reservations direct to Chicago Clinic of Physical Medicine. Attendance at this meeting is restricted to members of the American Congress and American Society of Physical Medicine and Rehabilitation and to physicians who are members of The American Medical Association.

MEDICAL NEWS

Members are invited to send to this office items of news of general interest, for example, those relating to society activities, new hospitals, education, etc. Programs should be received at least six weeks before the date of meeting.

PERSONALS

Arthur S. Abramson, Bronx, N.Y., is a member of the consulting medical staff of The Kessler Institute for Rehabilitation. — **Robert L. Bennett,** Warm Springs, Ga., is a member of the Advisory Committee of the American Occupational Therapy Association. —At the regular monthly meeting of the Pinellas County Medical Society on May 1, **William Bierman,** New York City, was a guest of the VA Hospital Staff. He spoke on "Physical Medicine and Rehabilitation in Chronic Neurological Problems of the Older Age Group."—**Neil Buie,** Marlin, Tex., is a member of the Committee on Nursing Care of the Texas Medical Association.— **Donald A. Covalt,** New York City, will be a guest essayist at the 1953 Annual Meeting of the Kentucky State Medical Association on Thursday, September 24.—**Dominic Donio,** formerly of New York City, has recently been appointed assistant professor of Physical Medicine and Rehabilitation at Hahnemann Medical College in Philadelphia. — At the regular monthly meeting of the National Rehabilitation Association of Southern California, **O. Leonard Huddleston,** Santa Monica, Calif., was moderator of the panel discussion "The Psychiatric Team in the Rehabilitation of the Tuberculous." Dr. Huddleston gave a report on papers given at the section on Physical Medicine and Rehabilitation at the AMA meeting at the monthly staff meeting of the Kabat-Kaiser Institute. — **Arthur C. Jones,** Portland, Ore., is author of the article "Rehabilitation Problems in the Aging" published in the June 1953 issue of NORTHWEST MEDICINE. — **Frank H. Krusen,** Rochester, Minn., served on the Miscellaneous Business Committee of the House of Delegates at the AMA meeting in New York last June.

As a representative of the American Rheumatism Association, **Edward W. Lowman,** New York City, attended the meeting of the National Rehabilitation Association in Atlantic City.—**Sedgwick Mead,** St. Louis, Mo., has been appointed chairman of the Committee on Physical Medicine of the Missouri State Medical Association. Dr. Mead's term of service extends through 1955. — **Eugene Moskowitz,** Mt. Vernon, N.Y., was guest speaker at the meetings of the Social Service Volunteers of Grasslands Hospital and the Polio Emergency Volunteers of Westchester County.—"Ultrasonic Therapy: A Review of Its Present Status and Future Possibilities" was read by **Kenneth Phillips,** Miami, Fla., at the 79th annual convention of the Florida Association.—**Constantine G. Psaki,** Philadelphia, attended the third class of upper extremity prosthesis at the School of Engineering of the University of California at Los Angeles and received accreditation by certification as a member of the prescribing team. Dr. Psaki spoke on "Peripheral Vascular Diseases" to the physical medicine staff at Letterman Army Hospital.—**Arthur A. Rodriquez,** Chicago, presented the paper "Preparing the Long Term Patient for Better Living" at the 23rd annual meeting of the Tri-State Hospital Assembly. — **Grace M. Roth,** Rochester, Minn., was elected secretary of the Section on Circulation of the American Heart Association.—The National Society for Crippled Children and Adults awarded a scholarship for study under Dr. Meyer A. Perlstein to **Herman L. Rudolph,** Reading, Pa. Dr. Rudolph will attend a course in cerebral palsy.—"Negative Galvanic Massage" co-authored by **Irving Tepperberg** and **Elemer J. Marjey,** New York City, appears in the June 1953 issue of the AMERICAN JOURNAL OF PHYSICAL MEDICINE.—**Odon F. von Werssowetz,** Nashville, Tenn., is author of the article "Alignment and Fitting of Lower Extremity Prostheses" published in the June 1953 PHYSICAL THERAPY REVIEW.—The British Orthopedic Association has conferred an honorary membership upon **Arthur Steindler,** Iowa City, Iowa. The Society honored him especially for his textbooks and his teaching.

REHABILITATION COMMITTEE PLANS SEMINAR

The Advisory Committee on Rehabilitation of the New Jersey State Medical Society will hold a workshop on employment of the physically handicapped at the Kessler Institute for Rehabilitation on Friday, October 2, 1953. In the morning, there will be four major speakers representing labor, industry, insurance companies and the medical profession. In the afternoon, there will be a series of special panels on rehabilitation of the tuberculous, rehabilitation of the cardiac and rehabilitation of older age workers. This seminar is open to all members of the rehabilitation professions and others interested in employment of the physically handicapped.

COLONEL SHIELDS APPOINTED CHIEF PHYSICAL MEDICINE CONSULTANT FOR ARMY

Lt. Col. Charles D. Shields, MC, formerly Commissioner of Health for the city of Buffalo, N.Y., has reported to the Army Surgeon General's Office for duty as Chief Physical Medicine Consultant in the Professional Division, effective July 1. Col. Shields replaces Col. Emmett M. Smith, MC, who has been assigned to Europe.

Col. Shields' most recent assignment was as Chief of Physical Medicine Service at Brooke Army Hospital, Ft. Sam Houston, Texas. During World War II, he served as commanding officer of the 87th Station and 141st General hospitals, later as public health officer with the Allied Control Commission in Italy. From 1944 to 1946 he served as Health Officer for Bavaria.

WESTERN ORTHOPEDIC ASSOCIATION

The annual meeting of the Western Orthopedic Association will be held at Sun Valley, Idaho, October 5 to 8, 1953. Details referable to the meeting may be obtained from the Secretary, Dr. Forrest L. Flashman, 1301 Spring St., Seattle 4, Wash.

GASTROENTEROLOGY COURSE

The National Gastroenterological Association announces that its Fifth Annual Course in Postgraduate Gastroenterology will be given at the Hotel Biltmore, Los Angeles, October 15 to 17, 1953. The course will be under the direction of Dr. Owen H. Wangensteen, Professor of Surgery of the University of Minnesota Medical School. For further information and enrollment write to the National Gastroenterological Association, Dept. GSJ, 1819 Broadway, New York 23, N.Y.

AMA SECTION ELECTS OFFICERS

At the annual business meeting of the Section on Physical Medicine and Rehabilitation of the American Medical Association, the following officers were elected: chairman, Walter M. Solomon, Cleveland; vice-chairman, William H. Schmidt, Philadelphia; secretary, Walter J. Zeiter, Cleveland; delegate, Frank H. Krusen, Rochester, Minn., and alternate delegate, Arthur L. Watkins, Boston.

Donald A. Covalt and Irving S. Cooper were awarded a Certificate of Merit for their scientific exhibit on early treatment of patients with spinal cord injury. The Section on Physical Medicine and Rehabilitation presented a group of eight exhibits. Arthur L. Watkins of Boston was the section representative.

RHEUMATOLOGY PRIZE

Under the sponsorship of the Societa Italiano di Reumatologia, Acqui's Health Resort office announces an international competition for an original, unpublished medical article dealing with the physiopathology, clinical history, and therapy of rheumatic and arthritic diseases. A price of one million Italian lira (approximately $1,600) will be awarded by the international judging commission. Articles in Italian, French, English, Spanish or German will be accepted. The competition will close January 31, 1954. For information, apply to the Azienda Autonoma di Cura—Acqui (Piemonte, Italy).

SCHOLARSHIP FUND ESTABLISHED

In a plan initiated by Dr. Charles L. Lowman, director of education and rehabilitation, the Orthopaedic Hospital in Los Angeles has established tuition-loan scholarships at the University of Southern California, Los Angeles, for students interested in becoming physical or occupational therapists. The plan provides for three tuition scholarships a year ($772 each, per school year) over a period of five years, when, it is anticipated, the loan fund will be self sustaining. Those interested in the loans should apply directly to the University of Southern California.

SESSION ON PM AT NEW YORK MEETING

At the annual convention of the Medical Society of the State of New York, several Congress members participated in the session on physical medicine. Papers presented were: "Treatment of Early Poliomyelitis with Hubbard Tank and Immersion Exercises," Henry V. Morelewicz of Buffalo, N.Y.; "Further Light on the Rationale of Physical Medicine Procedures," Hans J. Behrend, New York City, and "Muscular Fitness and Orthopedic

Disability," Hans Kraus, New York City. Doctors Morton Hoberman, Thomas E. Walsh, and A. David Gurewitsch discussed the foregoing papers. The presiding officer of the session was George M. Raus, Syracuse, N.Y., and A. David Gurewitsch, New York City, was assisting officer.

AOTA PLANS ANNUAL CONFERENCE

The American Occupational Therapy Association will hold its 36th annual conference November 13 to 20, 1953, at the Shamrock Hotel, Houston, Texas. "Refining Our Resources" will be the theme of this meeting. Dr. Ben L. Boynton, Professor of Physical Medicine, Baylor University College of Medicine, Houston, will deliver the keynote speech on Wednesday, November 18. Lt. Col. Charles D. Shields, Washington, D.C., and Dr. Oscar O. Selke, Jr., Houston, will serve as moderators at the sessions.

RESIDENCY TRAINING PROGRAM AT CRILE VA HOSPITAL

Crile VA Hospital, Cleveland, Ohio, has a physical medicine and rehabilitation program including physical, occupational, corrective, educational and manual arts therapy. In addition, the Physical Medicine and Rehabilitation Department is responsible for two paraplegic and one P.M.R. wards. Dr. Harry T. Zankel is Chief, Physical Medicine and Rehabilitation. Inquiries relative to this training program should be directed to Dr. Leon Ross, Chief, Professional Services, Crile VA Hospital, 7300 York Rd., Cleveland 29, Ohio, or to Dr. Joseph T. Wearn, Dean, Western Reserve University.

TWO FELLOWSHIPS AVAILABLE

The Children's Division of The Institute of Physical Medicine and Rehabilitation, New York University-Bellevue Medical Center, which is a joint cooperative undertaking with the Association for the Aid of Crippled Children, has announced the availability of two fellowships for graduate social workers in the field of pediatric rehabilitation. The fellowships, which pay a stipend of $3,000 a year, are open to graduates of approved schools of social work who have had a minimum of two years experience, preferably in a hospital setting. They will provide a year of specialized clinical experience in medical social work in the rehabilitation of physically handicapped children. Applications may be made to Miss Florence I. Moser, Children's Division, The Institute of Physical Medicine and Rehabilitation, 400 E. 34th St., New York 16, N.Y.

CORRECTION

In the article "Physical Medicine and Rehabilitation: Presciption and Effectiveness in Chronic Illness" by A. B. C. Knudson, M.D., which was published in the March, 1953, issue of the ARCHIVES OF PHYSICAL MEDICINE AND REHABILITATION, the statement on page 172, line 32 should read "Of the 49 patients under study, a total of 44 were discharged and the rehabilitation average length of stay for these patients was 81.8 days as compared with the average stay for the 25 patients of 243.76 days."

DEATH

We regret to announce the death of Dr. Meyer Glick of Miami Beach, Florida. Dr. Glick, a member of the Congress for many years, was associated with the Dade Institute of Physical Medicine and Rehabilitation at Miami Beach.

NEWLY REGISTERED THERAPISTS

May 20, 1953

Knight, Barbara Knowles, 346 Merrimack St., Manchester, N.H.

McKinney, Wayne P., 1417 Dent St., Garland Tex.

Merson, Rose Irene, 666 West End Ave., New York, N.Y.

Trachtenberg, Howard Seymour, 440 Avenue "C", Bayonne, N.J.

Weber, Erika Theodora, Rt. 6, Box 57, Dallas 9, Tex.

May 22, 1953

Sladky, Francis Joseph, 1334 Villa St., Racine, Wis.

May 26, 1953

Craytor, Shirley Ann, 135 N. Huron, Columbus, Ohio.

Davis, Billie Ruth, 411 - 12th, N.W., Ardmore, Okla.

Hopkins, Catherine Dolores, 5702 S. Washtenaw Ave., Chicago 29, Ill.

June 11, 1953

Gray, Barbara Dickinson, c/o Douglas Strong, 57 Hull St., Coldwater, Mich.

Horchler, Margaret Elizabeth, 713 2nd St. N. W., Watertown, S. D.

Humphreys, Nelle Marie, 1403 N. W. 10th Ave., Gainesville, Fla.

Johnson, Eleanor Ruth, Pole Bridge Rd., No. Scituate, R.I.

Joyce, Patricia Catharine, 2117 - 44 St., Des Moines, Iowa.

Kraft, Phyllis Lynne, 18 Midway Rd., Pittsburgh 16, Pa.

Mack, Norrine E., 2312 32 St. S. E., Washington 20, D. C.

Maioriello, Rosemarie A., 1407 S. Broad St., Philadelphia 47, Pa.

McDonnell, Sheila Margaret, 15 Castleton Park, St. George, Staten Island, N.Y., N.Y.

Quinn, Hope Elaine, 51 Mattingly Ave., Indian Head, Md.

Tucker, June Elane, 4 Alamosa Ave., Alamosa, Colo.

Yamasaki, Michiko, PO Box 736, Olaa, Hawaii, T.H.

June 15, 1953

Gaalaas, Kenneth Elias, 536 W. 41st Dr., Los Angeles 37, Calif.

Green, Leila Holley, 906 E. Market St., Iowa City, Iowa.

June 19, 1953

Anderson, Betty Yvonne, RFD #3, Houlton, Me.

Anderson, Mary Catherine, 617 Washington St., Wellesley, Mass.

Bell, Ruth Eleanor, 60 Wells St., Burlington, Vt.

Cotton, Rosemary Arlene, 8 Lincoln St., Greenfield, Mass.

Des Rochers, Pauline E., 862 Union St., Manchester, N.H.

Dukakis, Olympia, 39 Russell, Arlington 74, Mass.

Frye, Janet Louise, Indian Lane, Durham, Conn.

Glazer, Harriett Ellen, 6 Elm Hill Park, Roxbury, Mass.

Gordon, Rae Yvonne, Waterway, Saunderstown, R.I.

Hall, Carolyn June, 550 Main St., Salem Depot, N.H.

Hayward, Ruth Leslie, Monument Ave., Bennington, Vt.

Hazlehurst, Alice Elizabeth, 4208 Woodberry St., University Park, Hyattsville, Md.

Hinman, Ann Bunker, 229 35th Ave. N., Seattle, Wash.

Hoffmann, Eleanor Charlotte, 771 Maple St., Manchester, N.H.

Kadis, L. Joyce, 7 Devotion St., Brookline, Mass.

McCarthy, Claire Frances, 61 Colchester St., Readville 36, Mass.

Mozian, Dorothy Louise, 195 Jackson Ave., Rutherford, N.J.

Perregaux Mary Dolores, 1581 Massachusetts Ave., Cambridge, Mass.

Pridham, Carolyn Edith, 13 Bainbridge St., Roxbury 19, Mass.

Renshaw, Elynor Wentworth, 35 Johnson Rd., Arlington, Mass.

Reycroft, Barbara Ann, 661 McKee Ave., Monessen, Pa.

Russell, Barbara Isabel, 25 Elk Pl., Niagara Falls, N.Y.

Smith, Sarah Dodge, 106 Greenwood St., New Haven, Conn.

Smyser, Susan, RD #6, York, Pa.

Sullivan, Joan K., 21 Osborne St., Peabody, Mass.

Tarrant, Hazel May, 12 Bailey Ave., Yalesville, Conn.

Wellington, Elsie Marie, 9 Almont St., Medford 55, Mass.

Whitney, Doris Ann, 67A Main Circle, Shrewsbury, Mass.

June 26, 1953

Arakawa, Grace Miyoko, 14 Edison Ave., Medford, Mass.

Benson, Lydia, 26 Summer St., Westwood, Mass.

Bragg, Imogene Marie, Meadowcroft Lane, Greenwich, Conn.

Donnelly, Nancy Ann, 169 W. Elm St., Brockton, Mass.

Fayan, Anne Virginia, 1345 Gardner's Neck Rd., South Swansea, Mass.

Jewett, Joyce Marie, 115 Hickok Ave., Syracuse 6, N.Y.

Lovejoy, Sally, 718 Pine St., Manchester, N.H.

Lyttle, Grace Ottavilla, 23 Eden St., Chelsea, Mass.

Smith, Nancy Joan, 10 Crosman Ave., Swampscott, Mass.

Walsh, Jeanne Teresa, 51 Florida St., Dorchester, Mass.

June 30, 1953

Conant, Edith Mae, 12 W. Spring St., Alexandria, Va.

Ferguson, Helen Lee, 2969 Manchester Rd., Shaker Hts. 22, Cleveland, Ohio.

Gibbin, Marilyn Jean, East Randolph, N.Y.

Gregory, Wilbur Ross, 5182A Cates Ave., St. Louis 8, Mo.

Harrison, Wilfred Lewis, 64 Locust Hill Ave., Yonkers, N.Y.

Hickok, Robert Jerome, Public Square, Osceola Mills, Pa.

Jorgensen, John C., 4453 N. Laramie Ave., Chicago 30, Ill.

Lieberman, Howard Gerald, 7221 A Tulane, University City 5, Mo.

Simmons, Betty Ruth, Rt. 2, Box 326PC, 15 Tomahawk Trail, San Antonio, Tex.

Smith, Marilyn Joy, Mediapolis, Iowa.

Wilson, John Thurman, Jr., 1027 Cecil Ave., Louisville, Ky.

Winsett, Arnold Fritz, 536 Andrews Ave., Kirkwood, Mo.

July 9, 1953

Connolly, Eugene Joseph, 3321 W. 44th St., Minneapolis 10, Minn.

Cowger, Celia Ann, 5828 Corby, Omaha 4, Neb.

Hagen, Nancy Lou, 942 5th Ave. S. E., Rochester, Minn.

Humberger, Donald Earl, 1823 Knowles Ave., E. Cleveland 12, Ohio.

Johnson, Lucile Marie, MB-240 Como and 28, S. E., Minneapolis, Minn.

Karpan, Marguerite Adele, Keewatin, Minn.

Kotonias, Bess, 1612 5th Ave. E., Hibbing, Minn.

Longmore, Loren LaVern, Q-157 University Village, 28th and Como, Minneapolis, Minn.

O'Brien, Sarah Stoltze, c/o John R. Stoltze, 1200 Pioneer Bldg., St. Paul, Minn.

Ostlund, JoAnne Beverly, 626 Pierce St. N. E., Minneapolis 13, Minn.

Ptak, Rudolph Anthony, 209 14th Ave. N. E., Minneapolis 13, Minn.

Schilling, James L., 5521 Pillsbury So., Minneapolis, Minn.

Sexe, Richard W., 311 Willow St., Fairmont, Minn.

Spaeth, Bette Janet, Aitkin, Minn.

Strom, Barbara Mae, 114 Lincoln St., Mankato, Minn.

Udovich, Mary Ann, 504 N. W. 13th St., Chisholm, Minn.

Wulkan, Corrine Darlene, 3730-28 Ave. So., Minneapolis 6, Minn.

July 13, 1953

Brown, Louella C., R. R. 4, Rensselaer, Ind.

Haravitch, Esther Mae, 3868 De Tonty St., St. Louis 10, Mo.

Klausing, Florence B., 98 E. Longwood, Detroit 3, Mich.

Lawley, Sr. Mary Ellen, St. Francis Hospital, 114 Woodland St., Hartford, Conn.

Milz, Barbara Ann, 4937 Bonita Ave., St. Louis, Mo.

Villone, Mary V., 30 Milton St., E. Arlington, Mass.

BOOK REVIEWS

The reviews here published have been prepared by competent authorities and do not necessarily represent the opinions of the American Congress of Physical Medicine and Rehabilitation and/or the American Society of Physical Medicine and Rehabilitation.

RHEUMATIC DISEASES. Diagnosis and Treatment. By *Eugene F. Traut,* M.D., F.A.C.P. Associate (Rush) Clinical Professor of Medicine, University of Illinois: Attending Physician to the Cook County Hospital and to the West Suburban Hospital, Oak Park, Illinois: Associate Attending Physician to the Presbyterian Hospital of Chicago; Director of the Arthritis Clinic of Cook County Hospital; Lecturer on Arthritis in the Cook County Graduate School of Medicine; Member of the American Rheumatism Association. Cloth. Price, $20.00. Pp. 942, with 192 illustrations. The C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1952.

This is a new work on the rheumatic diseases. Much information is presented pertaining to joints and the surrounding structures, including the most prevalent types of arthritis and rheumatism, many of the rare forms of joint disease, and such topics as osteoporosis, sciatica, compensation features of rheumatism, and others.

The opening chapter entitled "Etiology, Classification, and Pathogenesis of Diseases of Joints," is quite comprehensive. Most of the causes suggested for various forms of arthritis are given -- many are questionable and their inclusion must be confusing to all but the best informed and most critical. The chapter on Psychologic Factors in Rheumatoid Arthritis is the interesting reprint of Doctors Adelaide Johnson, Franz Alexander and L. B. Shapiro. This concept is stimulating but whether acceptable to most rheumatologists or psychiatrists is questionable. Except for the work of this Chicago Clinic and Dr. Halliday of England, not enough investigation by other groups has been done. The subject certainly warrants further study. An early chapter discusses the joints in immobilized extremities in such disorders as parkinsonism, hemiplegia, citing experimental studies. Histological sections show the changes in the soft tissues; the roentgenograms of the joints fail to demonstrate any type of arthritis. The subject is very seldom found in textbooks; it is entitled to more considera-

tion. This is a new and excellent chapter.

The pathological changes in the muscles of patients with rheumatoid arthritis written in collaboration with Dr. Campione, is reviewed, together with their investigation of 16 patients. They compared sections from these sixteen patients having rheumatoid arthritis with those from patients having other chronic and acute diseases. They conclude that "perivascular infiltration was the only unusual finding peculiar to rheumatoid arthritis." This chapter adds new information and is well presented.

The chapter on Skin in Rheumatism by M. A. Ebert and that on the Eye Manifestations of Rheumatic Diseases by W. F. Hughes are worth-while additions to the book. The various conditions in the skin and eye with which rheumatic disorders are associated are given. They are both comprehensive and afford excellent references.

Two chapters of 100 pages consider rheumatic fever and endocarditis. Several pages and numerous references are rightfully devoted to the possibility that various types of streptococci are the causative agents; however, the opening sentence of this section is as follows, "Rheumatic fever is currently regarded by most students as a hypersensitive (allergic) state rather than a disease due to progressive invasion by any microscopic or ultramicroscopic virus," and for references for this statement three articles dated 1928, 1933, and 1938 are given. This theory has many supporters and may eventually prove to be the true mechanism of the production of rheumatic fever, but the wisdom of this rather dogmatic statement, the prominence given it by the author, and the failure to use the more recent interpretation, might be questioned. The general discussion following this section on etiology includes the accepted ideas of the disease and its treatment.

A large section discusses the various conditions of the back and is followed by two chapters on pain about the shoulder. It is interesting to read the statement "diathermy is probably the most effective form of treatment" for periarthritis of the shoulder. Several short chapters consider such entities as psychogenic rheumatism, lupus erythematosus disseminatus, scleroderma, dermatomyositis and others.

Chapter 37, entitled "Treatment of Joint Disease (general)", is a conglomeration of about everything and is merely confusing. Much of it is repetitious. The next chapter considers the "Medicinal Treatment of Chronic, Non Specific Arthritis," with a negative report for most of the drugs. No doubt this has a purpose, but since most of the references are to old drugs which are only seldom prescribed today, it is doubtful whether the physicians who persist in using these drugs will read this book and if they did, they probably would not be influenced; whereas the younger physician will not need the advice, or certainly not at such length.

The chapter on the relation of the endocrine glands to rheumatic diseases has sufficient up-to-date information to be helpful. Three chapters consider physical medicine. The statement is made that since the advent of the steroids, physical medicine is not needed in the acute and subacute inflammatory joint diseases — subsequent experience has not borne out this expectation. The author has used the physical agents effectively and correctly and the material presented will be approved by most physiatrists and personnel in physical medicine.

No volume is perfect, and this is certainly a finding in any new work; but this volume appears to have a bit more than its share of inaccuracies and misstatements. For example: In the preface, the author mentions his dependence upon the views of the "American Congress of Physical Therapy, the American Society of Physical Therapy Physicians, and the Academy of Physical Medicine." What organizations have these titles in 1952? The chapter on the effect of the nervous system on rheumatic diseases opens with ideas about the vegetative system. The author's opinions and the theories of others are cited. Such quotations as the following are examples, "some joint disease may be a manifestation of corticothalamic imbalance"; "histamine is used advantageously in the types of joint disease characterized by vasoconstriction"; and "Abnormally reacting neurovascular system determines an inadequate reaction to infection"; "The subcutaneous nodule is as pathognomonic of rheumatoid arthritis as the tophus of gout." In the discussion of various forms of arthritis a section is headed "Specific Methods of Diagnosis." The first item is goniometer followed by joint thermometer, endoscopy and arthroscopy. Certainly the author doesn't believe these methods are specific. A further quotation is cited: "The causes of degenerative arthritis can be listed under two headings: age and trauma." No doubt subsequent editions will correct such statements.

The book is large and expensive and if intended as stated in the preface for the medical student and physician in general practice, it will be much too confusing. The inclusion of many theories and thoughts about the various aspects of the rheumatic diseases —including etiology, pathology and treatment, are not the material for a student or a busy practitioner. They require precise and proved forms of therapy, and short and reliable sources for other concepts of the diseases. The book is also intended as a reference work for the rheumatologists and other investigators — this group would wish more material. It is difficult to satisfy both

groups in one volume. The author and his collaborators have done a great deal of work in producing this new volume. Rearrangement of some of the material, condensation, and elimination of the repetitions should make the book smaller and less expensive.

HEALTH RESOURCES IN THE UNITED STATES: PERSONNEL, FACILITIES, AND SERVICES. By *George W. Bachman* and associates. Cloth. Price, $5.00. Pp. 344. Brookings Institution, 722 Jackson Pl., N.W., Washington 6, D. C., 1952.

This book is the result of three years' work in accumulating information concerning the health conditions and facilities in the United States. Part 1 deals with the changes in the nation's health during the first fifty years of this century: Part 2 covers the various personnel such as doctors, dentists, nurses, physical and occupational therapists, psychologists, chiropractors and all the rest. This section gives the actual numbers in each group, also facts about schools, admissions and duties of the groups. The last section is concerned with the facilities and services. Special attention is given to the larger groups of diseases such as mental illness, cardiovascular diseases, cancer, and tuberculosis. Several pages are devoted to rehabilitation centers—the patients treated, personnel, programs available in federal and non-federal institutions, and other phases. This section also includes facts about medical and health services in industry. The book is a convenient source of a large amount of data brought together in one volume.

PRINCIPLES OF MEDICAL STATISTICS. By *A. Bradford Hill.* Fifth edition. Cloth. Price, $3.00. Pp. 291. Oxford University Press, 114 Fifth Avenue, New York 11, 1950.

This book began as a series of articles in Lancet of 1937. These were so much in demand that they were brought out in book form; the book has gone through 5 editions and 3 reprint issues. My battered copy of the 1945 reprint is one of my most borrowed books; I am told this is the most widely used book of its kind in American schools of medicine. The author's purpose is to state and illustrate the principles, possibilities and applications of the statistical method in terms which a medical reader can understand. This is done in a clear, readable and—what is more remarkable—even charming style. The present edition is enlarged by inclusion of examples of general medical interest and applicability. Some few discordances between British and American usages could be advantageously adjusted in future editions. But these are not important. No one who handles or criticizes medical data should be without this book, unless he is already an accomplished statistician. It is enthusiastically recommended as the best available text of its kind, a veritable "Guide to the Perplexed," an insurance against false claims and a beacon to accurate and reasoned statement.

YOU AND YOUR AGING PARENTS. By *Edith M. Stern* with *Mabel Ross,* M.D.; United States Public Health Service, Director, Prince Georges County Mental Health Clinic. Cloth. Price, $2.75. Pp. 212. A. A. Wyn, Inc., 23 West 47th Street, New York 19, 1952.

The author of this interesting book, Edith Stern, is a member of the National Committee for Mental Hygiene and has previously written books on the handicapped child and on mental illness. Her collaborator, Dr. Ross, is a psychiatrist who has been particularly concerned with family problems. Physicians who are interested in the ever-increasing problems of aging will find this a valuable reference work. Often they may wish to recommend to children of aging people that they read this book.

The book is divided into five sections: (1) In the course of human events; (2) You live apart; (3) You live together; (4) Life must go on and (5) In sickness and in health. By reciting various stories from life arising from a wide variety of situations, the author has prepared a sensible guide dealing with the relationships between children and their aging parents. It presents a helpful, fair and sympathetic viewpoint in the solution of the many problems which develop owing to the necessity for adjustment to new family relationships when parents become old. Physiatrists and geriatrists will find this book of value.

ANNUAL REVIEW OF MEDICINE. Volume II. By *Windsor C. Cutting,* M.D., Editor, and *Henry W. Newman,* M.D., Associate Editor. Cloth. Price, $6.00. Pp. 485, Annual Reviews, Inc., Stanford, California, 1951; Volume III. By *Windsor C. Cutting,* M.D., Editor, and *Henry W. Newman,* M.D., Associate Editor. Cloth. Price, $6.00. Pp. 442. Annual Reviews, Inc., Stanford, California, 1952.

Following the precedent of the initial volume, these two publications represent an effective compilation and systematic review of current literature in various fields of medical interest. Each segment is written by an outstanding authority who discusses the subject with particular emphasis given to his special interest and to his evaluation of recently reported contributions. This discussion correlates and presents the information in a form which is more useful than are reviews which include simply a collection of ab-

stracts or a listing of references. In each volume there are sections of diseases of each of the major anatomical systems in addition to coverage of such fields as infectious and neoplastic diseases, psychiatry, radiology, nutrition and laboratory aids to diagnosis and therapy. Volume II also contains a discussion of the general adaptation syndrome by Selye; a chapter on allergy, which emphasizes the relationship of the pituitary and adrenal glands to this field; and sections on diseases of skin, bones and joints, and trauma due to physical agents. In Volume III there are separate sections on anesthesia, toxicology and diseases of the eye. It is additionally valuable in that each subject is reviewed by a different authority each year, resulting in a wider range of critical opinion of new observations. The publications are indexed by authors and subjects; they contain an extensive bibliography at the conclusion of each chapter and annotated list of reviews from the literature of the previous year. These useful reference works should be of interest both to clinicians and research investigators.

A TEXTBOOK OF ORTHOPEDICS. With a Section on Neurology in Orthopedics. By *M. Beckett Howorth,* M.D. Clinical Professor of Orthopedic Surgery, New York University Post-Graduate Medical School. Formerly, Assistant Clinical Professor of Orthopedic Surgery, College of Physicians and Surgeons, Columbia University; Associate Attending Surgeon, New York Orthopedic Hospital. Cloth. Price, $16.00. Pp. 1110, with 463 illustrations. W. B. Saunders Company, West Washington Sq., Philadelphia 5, 1952.

The new Textbook of Orthopedics is a large volume of 1110 pages, written in association with five co-authors. The book is well printed, readable and each section is well arranged. The book is well illustrated by photographs, photomicrograms and roentgenograms.

The author states that "this book is to provide the basic facts of the etiology, pathology, diagnosis and treatment of abnormalities and diseases of the musculoskeletal system for the physician interested in these problems. The book contains much of interest to the experienced orthopedist but is not intended as a complete textbook of technics for him."

The book is divided into four sections: (1) introduction and basic principles of orthopedic practice; (2) regional orthopedics and the section on neurology in relation to orthopedic practice; (3) the history of the development of orthopedics and, (4) the section on neurology as it relates to orthopedics.

This is an excellent volume, not only for the orthopedist but also physicians in related specialties, and is recommended to the physiatrist as a reference book.

THIS IS YOUR WORLD. Written and illustrated by *Harry A. Wilmer,* M.D., Ph.D. in Path. Consultant in Psychiatry, San Mateo County Tuberculosis Sanatorium, Instructor in Medicine (Neuropsychiatry), Stanford University, San Francisco, California, Consultant to Division of Chronic Disease and Tuberculosis, United States Public Health Service, Washington, D.C. Foreword by *Adelaide McF. Johnson,* M.D., Ph.D., Consultant in Psychiatry, Mayo Clinic, Rochester, Minnesota, Associate Professor of Psychiatry, University of Minnesota, Member, Chicago Psychoanalytic Institute. Fabrikoid. Price, $5.50. Pp. 165 with illustrations. Charles C Thomas, Publisher, 301-327 East Lawrence Ave., Springfield, Ill., 1952.

The author of this book has two worthy objectives in his attempt to define and deal with the emotional problems of patients with tuberculosis. He offers the patients an approach to handling the long period of isolated inactivity and suggests that the physician, as a rule, disregards the psychiatric aspects of this chronic illness. It is the impression of the reviewer, a physician, recently hospitalized for tuberculosis, and lay patients in the same sanatorium that the writer has erred in talking down to the patient. He regards them as children, which is neither complimentary nor necessary. Further, he has overemphasized the devotion of practicing physicians to physiology at the expense of psychiatry. In fact, he would commit the error he decries in reverse with too much emphasis on emotional factors. The book may have value among very young or unusually poorly adjusted patients with tuberculosis.

PROBLEMS OF AGING. Transactions of the Fourteenth Conference, Sept. 7-8, 1951, St. Louis, Mo. Edited by *Nathan W. Shock,* Chief, Section on Gerontology, National Heart Institute, National Institutes of Health and the Baltimore City Hospitals, Baltimore, Md. Cloth. Price, $3.00. Pp. 138, with illustrations. Josiah Macy, Jr. Foundation, 565 Park Ave., New York 21, 1952.

This monograph, which describes the transactions of the fourteenth conference on aging held in St. Louis in September, 1951, includes the combined opinions of thirty-four participants including anatomists, physiologists, gerontologists, internists, biologists, biochemists, zoologists, pharmacologists, nutritionists and sociologists. Sections of the book are: "The Macy Foundation Conference Program" by Frank Fremont-Smith; "Introductory Remarks" by E. V. Cowdry; "Biology and Medicine" by John E. Kirk; "Sociology,

Psychology, Education, and Religion" by Robert J. Havighurst; "Economics, Employment, and Welfare" by Wilbur J. Cohen, and "Medical Services, Hygiene and Housing" by Joseph W. Mountin.

This book, which contains largely discussion of the general topic under several major headings, has both the advantages and disadvantages of such an approach. Although necessarily lacking the uniformity and continuity of a textbook, nevertheless it does contain a wealth of somewhat disconnected ideas. The book confirms the contention that when you get enough good minds together, numerous constructive thoughts are presented and you have what the late great physiologist, Dr. Walter Cannon, spoke of as the "fecundity of aggregation."

Here, then, is still another of the many new books on geriatrics which will provide worth-while reading for the physiatrist or the geriatrist.

COMMUNITY SERVICES FOR OLDER PEOPLE. THE CHICAGO PLAN. Prepared by the Community Project for the Aged of the Welfare Council of Metropolitan Chicago. Project Director, *Elizabeth Breckinridge;* Assistant Director, *Helen Graves Laue;* Study Supervisor, *Mary Hollis Little;* and Consultant on Institutional Services, *Helen Manning.* With a foreword by *Ernest W. Burgess,* Professor Emeritus of Sociology, University of Chicago. Cloth. Price, $3.00. Pp. 240. Wilcox & Follett Company, 1255 S. Wabash, Chicago 5, 1952.

This interesting book, which is one of the first comprehensive studies on the needs of aged persons in a large American metropolitan area, has been compiled over a period of four years by an able group of investigators. The text is divided into seven sections; (1) community education, (2) employment and retirement, (3) housing and home services, (4) health, (5) recreation and education, (6) case work and counseling and (7) the Chicago plan: a summary.

Chicago, the area studied, provided a very wide variety of patterns of living in old age. The authors examined the increasing challenge to America's powers of constructive living and adaptability to new circumstances as posed by our rapidly aging population. The two major problems of the older members of our society were considered: first, the present enormous wastage of the social worth of older people and, second, the misery inflicted by denying older people their full place in industry and in family, social and civic activities. Specific new services and activities are recommended. The agencies and organizations which should undertake such activities are mentioned. This book indicates how certain services can be adjusted to meet the needs of older persons.

The study is important because it considers not only this tremendous problem, but also gives recommendations with regard to constructive action which have application to most American communities. This book will be of interest to the physiatrist, the geriatrist, the social worker, and to any person concerned with the ever-increasing problems arising from the rapid aging of our American population.

OPERATIVE NEUROSURGERY WITH EMPHASIS ON PROCEDURES IN TRAUMA. By *Elisha Stephens Gurdjian,* M.D., Professor of Neurosurgery, Wayne University College of Medicine; Chief, University Neurosurgical Service, Grace Hospital, Detroit, Michigan and *John E. Webster,* M.D., Assistant Professor of Surgery, Wayne University College of Medicine; University Neurosurgical Service, Grace Hospital, Detroit, Michigan. Cloth. Price, $10.00. Pp. 422 with illustrations. Williams & Wilkins Company, Mt. Royal and Guilford Aves., Baltimore 2, 1952.

This is an excellent book for the guidance of young neurological surgeons as well as the general surgeon who at times is called upon to carry out a neurosurgical procedure. It describes new methods but emphasizes tried and true methods which have stood the test of time, and it also includes historical reviews of the development of some of the procedures. The book is divided into four parts covering the anatomy and surgery of the head, spine, sympathetic nervous system, and peripheral nerves. The anatomy of the nervous system as well as the surgical procedures are illustrated by means of detailed diagrams. This book is clear and concise, and very readable.

TEXTBOOK AND GUIDE TO THE STANDARD NOMENCLATURE OF DISEASES AND OPERATIONS. By *Edward T. Thompson,* M.D., F.A.C.H.A., Senior Surgeon, Public Health Service, and *Adaline C. Hayden,* R.R.L. Cloth. Price, $8.00. Pp. 619. Physicians' Record Company, 161 W. Harrison St., Chicago 5, 1952.

All medical indexing systems must necessarily be arbitrary in many ways and many problems arise as to the proper classification of diseases and surgical procedures. The Record Librarian must always keep in mind that indexing is important and valuable only if it will make available to the physician the groups of cases he may desire. Textbook and Guide to The Standard Nomenclature of Diseases and Operations should be on every Record Librarian's desk for quick reference; it can answer many questions for her.

The early chapters deal with problems of installation and correlation with the Inter-

national classification. Chapters XIII, XIV and XV — Special Problems, Specific Problems of Disease Classification and Specific Problems of Operations — will probably be most often referred to, especially in hospitals where standard nomenclature is not a recent installation. Problems are daily arising as to the proper classification of diseases and operations, the terminology for which varies in different parts of the country. In most hospitals, interns come from widely spread areas including the Central and South American countries. This variation in terminology is especially true in operative procedures. These chapters can solve many of these problems.

Medicine is a constantly changing science. New concepts of the origin of diseases are constantly being developed. This is particularly true in hematology and the chapter dealing with an amplification of the terminology as classified in Standard Nomenclature will be of great help. This book could well be placed in the hands of the medical staff, since basically it is the physician who should make the diagnosis in such a way that it can easily be classified by the Record Librarian and her associates.

DEAF CHILDREN IN A HEARING WORLD. Their Education and Adjustment. By *Miriam Forster Fiedler*, Ph.D., Director of Psychological Research, Clarke School for the Deaf, Assistant Professor, Department of Education and Child Study, Smith College. With a foreword by *Mary Fisher Langmuir*, Ph.D., Chairman, Department of Child Study, Vassar College, and Director, Vassar Summer Institute. Cloth. Price, $5.00. Pp. 320, with illustrations. The Ronald Press Company, 15 East 26th Street, New York 10, 1952.

This volume is an account of a five year program for the study of children with hearing difficulties. Four-week experimental sessions were held at the Vassar Summer Institute for family and community living. The recorded experiences with the children together with comments and the interpretations by the staff members of the Vassar Summer Institute provide the subject matter for this book. The deafened youngster was first considered as a child. A good educational program for young children is based on sound factual knowledge that young children are happy, natural, and efficient only within the real world about them and that children learn through feeling about their experiences and not by thinking about them. The staff investigated such questions as whether there was an easier method of teaching a deaf child; whether the methods now in vogue were suffering from an educational lag; whether language teaching might not be accomplished in a setting which is known to be more appropriate for child learning; and whether a hard of hearing child can enter into and communicate with the hearing world. These and many other questions were in the planned program. Eleven children were studied. The experiences and the interpretations by the investigators are written out carefully. It is the belief of the author of the book that the experiences of the children and the interpretations given will be of value to other parents of hard of hearing children. The book is well written and is amply documented. The author realizes that the number of children studied is too few to draw any definite conclusions about the results of the program.

HEALTH INSTRUCTION YEARBOOK 1952. Compiled by *Oliver E. Byrd*, Ed.D., M.D., F.A.P.H.A., Professor of Health Education, and Director, Department of Hygiene, School of Education, Stanford University. Foreword by *Gloyd Gage Wetherill*, M.A., M.D., Director of Health Education, San Diego City Schools. Cloth. Price, $3.50. Pp. 232. Stanford University Press, Stanford, Calif., 1952.

This magnificent book is filled with substantial, important information in the shape of summaries, each about half a page in length, of 273 articles selected from medical publications between July 1, 1951, and June 30, 1952. The summaries are grouped into 21 chapters under such titles as "Infection and Immunity," "Chronic and Degenerative Disorders," "Family Health," "School Health," and "Occupational Health." Each chapter opens with an interesting prospectus of its contents. The sources are listed in a bibliography at the end, and there is a good index.

The best parts of this book are those dealing with the objective facts of accidents and physical disease; they will be invaluable in health education courses in public schools. The weakest parts are those dealing with mental disease, since they reflect the confusion of contemporary thinking on the subject. Such words as "suspicious," "homosexual," "hysterical," and "masturbation" carry quite different meanings to different readers, and if they are to be used in a book that will presumably be read with minute literalness by students it is necessary to add explicit *ad hoc* definitions. Fallacies that are popular today are exemplified by such phrases as "potentially harmful drugs," as if there existed a drug that is not potentially harmful, and statements like "excessive use . . . is not good," a curious platitude. Some of the articles abstracted are undocumented statements of opinion, and the author has not always resisted the temptation to quote an authority when the basic facts would serve much better. On the whole, however, this book deserves high praise, and its wealth of

up-to-date facts will make it valuable to a large segment of the reading public, including physicians.

PAIN SENSATIONS AND REACTIONS. By *James D. Hardy,* Ph.D., Associate Professor of Physiology, Cornell University Medical College; *Harold G. Wolff,* M.D., Professor of Medicine (Neurology), Cornell University Medical College and *Helen Goodell,* B.S., Research Fellow in Medicine, Cornell University Medical College. With a foreword by *Edwin G. Boring,* Ph.D., Professor of Psychology, Harvard University. Cloth. Price, $6.50. Pp. 435 with illustrations. The Williams & Wilkins Co., Mt. Royal and Guilford Aves., Baltimore 2, 1952.

This volume is the report of thirteen years of intensive study. Much of the material covers the authors' own investigations and their interpretations of the work and ideas of others. The subject has been approached from a predominantly psychological aspect; however the authors have made use of the knowledge of physiology, neurology, anatomy and physics.

The opening chapter discusses the concepts concerning pain with a short review of the previous idea of pain as a "feeling state" and the newer theory which regards is as a "sensory state." It is shown that these two ideas are not necessarily opposite, but are interrelated. Chapter II explains the structures subserving pain, with explanations of the pathways involved and the stimuli necessary to produce the sensations. Several chapters consider the various methods that are used to study pain thresholds, such as mechanical, chemical, electrical and thermal. The advantages and shortcomings of these different agents are evaluated. A chapter describes the actual measurement of pain intensity and explains how the term "dol" is applied.

A long and important chapter entitled "Reactions to Pain" discusses the conscious and partly conscious reactions, with the reports of many experiments both of the authors and of other investigators. Many factors are considered — conditioning effects of culture, sex patterns, hypnosis, adaptation, and numerous others. The last part of the book is concerned with analgesic agents and pain. Various drugs are discussed. The differences of their pain relieving properties are explained.

This book contains a tremendous amount of information which is presented in a clear and concise manner. The book amply demonstrates how the subject of pain is now being approached by scientific methods. With the use of quantitative measurements for the various reactions, even greater advances can be anticipated. The authors have made outstanding contributions to the psychophysics of pain.

ESSENTIALS IN DISEASES OF THE CHEST FOR STUDENTS AND PRACTITIONERS. By *Philip Ellman,* M.D., F.R.C.P., Consultant Physician in Diseases of the Chest to the North-East Metropolitan Regional Hospital Board at East Ham Chest Clinic, Harts Sanatorium and Plaistow Hospital Chest Unit, London, Consultant Physician St. Stephen's Hospital (Rheumatism Unit), London and Dorking General and Leatherhead Hospitals, Lately Physician in Charge Medical Division, Leatherhead Emergency Hospital of King's College Hospital, Editor British Journal of Tuberculosis and Diseases of the Chest. Fabrikoid. Price, $6.50. Pp. 400 with illustrations. Oxford University Press, 114 Fifth Avenue, New York 11, 1952.

This book ably covers the author's purpose, namely to provide a concise, as well as comprehensive, volume on diseases of the chest for students and general practitioners. Actually, it accomplishes even more, as it is also an excellent reference for those limiting their practice to pulmonary diseases. It is apparent that the author has had a long and wide experience in the field. The introductory chapters dealing with anatomy, normal and abnormal physiology, with explanation of the mechanisms of signs and symptoms, is most practical and refreshing. The twenty-nine chapters include both the common as well as most of the uncommon diseases of the respiratory tract. Most adequate stress is given to the recent advances in the recognition of new entities in this specialty, and particularly in diagnosis and treatment. This is well demonstrated, for example, in the chapter on Industrial Diseases of the Lungs, where the author has, in addition, contributed a very concise etiologic classification. This book will prove invaluable to those interested in keeping abreast of the rapidly unfolding advances in diseases of the chest, to the specialist, student, and general practitioner alike.

PHYSICAL MEDICINE ABSTRACTS

Stability of Body Function in the Aged. II: Effect of Exposure of the Body to Heat. Cletus L. Krag, and William B. Kountz.

J. Gerontol. 7:61 (Jan.) 1952.

Aged individuals usually are considered to respond differently than the young to exercise, drugs, trauma, infections, heat, and cold. Few reports are actually available, however, concerning such response. In this study are presented the results of exposure of a group of aged human subjects to heat. A similar study of the response to cold has already been published. Observations were made upon 14 subjects between the ages of 57 and 95 years, and on 12 young subjects 21 to 32 years of age. The subjects were exposed to heat by means of a standard type Burdick Fever Therapy Cabinet, which was controlled to produce an ambient temperature of 100 to 115 F. (38 to 45 C.) and the air of which was of approximately 100 per cent relative humidity. All subjects were observed under strictly controlled basal fasting conditions. All were exposed to heat for 60 to 90 minutes (except for one subject) and, when necessary, exposure was terminated upon subjective distress. Rectal temperature, oral temperature, pulse rate, respiration, and oxygen consumption were measured before and during the exposure. The results indicated that although the aged withstood the exposure fairly well, their response in terms of changes in pulse rate and oxygen consumption was more variable than that observed in the young.

Effect of Electrical Stimulation on Muscular Atrophy Resulting from Acute Inanition. A. Brodish; J. D. Thomson, and H. M. Hines.

Am. J. Phys. Med. 31:153 (June) 1952.

A study was made of the effects of electrotherapy upon the atrophy which occurs in skeletal muscle during acute inanition. The experiments were carried out on the gastrocnemius muscles of adult rats, which were fasted until they had lost thirty per cent of their initial body weight. In one group, the electrical stimulation was applied during the period of fasting and in another, it was applied during the period of refeeding recovery. The therapy consisted of volleys of slight supramaximal induction shocks applied daily for one minute to the gastrocnemius muscle of one limb. The contralateral unstimulated muscle served as a control. Electrotherapy applied during a period of acute inanition caused a retardation of weight, total strength, and total creatine loss in muscle. No significant effect on the strength per unit mass and creatine concentration of treated muscle was observed. The increase in strength and creatine content was due entirely to a larger muscle mass. The same modality of electrical stimulation, when applied to normal muscles and to muscles recovering from the effects of acute inanition, caused a slight but significant increase in the dry weight of the treated muscle but no improvement in strength and creatine content. Some possible mechanisms underlying the effect of electrotherapy on atrophic skeletal muscle are discussed.

Betaine and Glycocyamine in the Treatment of Disability Resulting from Acute Anterior Poliomyelitis. M. E. Borsook; Harvey K. Billig, and James G. Golseth.

Ann. West. Med. & Surg. 6:423 (July) 1952.

Thirty-one patients with paralysis and a constant degree of paresis resulting from acute anterior poliomyelitis were treated with glycocyamine and betaine. Twenty-six patients showed objective evidence of improvement, which was frequently of a useful degree; five patients showed no evidence of muscle improvement. All patients demonstrated an improved sense of well-being; less fatigue and greater general strength and endurance were apparent early in the course of treatment. These effects have persisted and were apparently independent of any objective improvement in the paretic muscles. Most patients gained weight. Whenever motor unit activity or residual power remained in a muscle or muscle group, a sub-

stantial increment of motor unit activity and muscle power occurred with betaine-glycocyamine therapy. Conversely, in muscles exhibiting nothing but denervation fibrillation or where no residual function or motor unit activity existed, at no time during the course of therapy did any increase in activity or muscle power occur. Of the 275 muscles with residual function, 268 clinically, and all electromyographically, showed improvement.

The Treatment of Hyperhydrosis of Hands and Feet with Constant Current. H. D. Bouman, and Emma M. Grunewald Lantzer.

Am. J. Phys. Med. 31:158 (June) 1952.

This is a description of a simple effective treatment for hyperhydrosis of hands and feet. One hundred and thirteen patients have been treated with an application of constant current. In one hundred and three of these, drying occurred in five to thirteen treatments with an after-effect lasting up to three months. In six additional patients, drying was obtained with aluminum ion transfer. In four patients the treatment resulted in unsatisfactory improvement or none at all. The effect appears to be due to a direct inhibitory effect on the sweat glands.

Prescribing Physical Treatment in General Practice. Odon F. von Werssowetz.

Am. Pract. 3:297 (Apr.) 1952.

A prescription for physical medicine should include: (1) statement of diagnosis, full and complete; (2) estimate of disability; (3) designation of part to be treated; (4) detailing of precautions or restrictions to be observed; (5) directions for treatment procedure to be used, including the number and frequency of treatment, home instructions, and any other pertinent details, and (6) date of recheck by the physician. It is well to include a date on the prescription when the physician wants to re-examine the patient. On that date, the physical therapist will refer the patient to the physician and will present a comprehensive summary of the patient's progress. This serves as a check on the therapeutic program, its progression, and need for modification. Before referring patients for physical treatment, a physician should become familiar with the training, special abilities, and limitations of the physical therapist. It also saves a lot of embarrassing explanation if the physician becomes familiar with the equipment available to the therapist, as he then will not prescribe treatment that the therapist will be unable to furnish. Physical treatment usually is an adjunct to other therapeutic procedures. To gain full advantage of it, it is necessary to select the patient with care, and with the knowledge that the procedure recommended has a definite place in the treatment and will be beneficial to the patient. If the patient does not respond or show any progress within a reasonable time, then physical therapy will not be of any value and should be terminated. This can be done only by the physician after proper evaluation of the condition. The physician should not refer for physical treatment those patients in whom he is no longer interested or who show chronic or terminal illness without any hope of getting results. A common pitfall in prescribing physical therapy is allowing the patient to prescribe for himself. The physician should prescribe only the minimal number of different procedures that will accomplish the desired results. A "shot gun" type of prescription usually does more harm than good. And, finally, physical therapy treatments should be sufficient in number and frequency and should be started as early as possible to obtain optimal results.

Heating the Knee Joint. H. M. Whyte, and S. R. Reader.

Ann. Rheumat. Dis. 11:54 (Mar.) 1952.

It is generally conceded that radiant heat is less effective than diathermy for heating joints. Whyte and Reader have made some observations on this point in the knee joint in the course of other studies and have presented their methods and results, which may be of value to those who are interested in measuring joint temperatures and assessing the effectiveness of treatment. Three methods of heating were used in the study: long infrared radiation, short infrared radiation, and diathermy, the latter proving to be the best method for heating the knee joint. The fact that diathermy caused the joint temperature to rise above the normal temperature of blood is an indication of deep penetration by this form of heat. On the other hand, the delayed and poor response to radiant heat can be interpreted to mean that infrared radiation, even of the most penetrating type such as that given by a tungsten filament lamp, has no direct effect on the joint. When radiation is applied to the knee, the heat is absorbed by the skin and superficial tissues and is carried away by the blood without directly influencing to any appreciable extent the temperature of the underlying joint. However, the absorption of heat and the consequent increase in blood flow lead to gradual warming of the whole leg, as a result of which the temperatures throughout the limb, particularly in the center, approach the temperature of the blood. Therefore, the application of moderate amounts of heat to

the whole limb probably is more efficient than application of intense heat restricted to the region of the joint when radiant heat, hot-water bottles, or other nonpenetrating forms of heat are used. The most that can be hoped for with these methods is to raise the joint temperature to 37 C. or slightly more. The most efficient heating would be given by warming the whole limb and at the same time applying diathermy to the knee.

The Prevention of Deformities Following Thoracoplasty. J. D. Murphy; Ila J. Amrhein; Frank P. Ilasi; B. B. Bagby, and W. S. Schwartz.

Am. Rev. Tuberc. 66:436 (Oct.) 1952

It is not intended that this article should convey the impression that an exercise program is a treatment for pulmonary tuberculosis. Improvements in anesthesia, surgical techniques, and postoperative care are undoubtedly responsible for the improvement in end results. The authors were convinced, however, that resistive exercises could be used in the early postoperative period without harmful effects upon the pulmonary lesion.

Before beginning this program, it was necessary, in order to prevent criticism, to prove to the physicians concerned with the treatment of pulmonary tuberculosis that the exercises were not harmful. A study was made of a group of 72 consecutive patients who had undergone thoracoplasties in 1946 (before the initiation of the resistive exercise program) and of 55 patients who were operated upon after adoption of the exercise program in 1948. An evaluation was made one year after the final stage of surgery in both groups. It was found that, in the 1946 non-exercise group, 55.4 per cent had sputum negative for M. tuberculosis one year after operation; 71 per cent of the 1948 exercise group, on the other hand, had sputum negative for tubercle bacilli. Complications such as postoperative spreads of disease, atelectasis, and wound infection, as well as the case-mortality rate, were higher in the non-exercise than in the exercise group. In the 1948 study, an evaluation of the immediate effects of exercise was also made. The temperature and the pulse and respiratory rate of each patient was charted before, immediately after, five minutes after, and one hour after exercise. The temperature remained within normal limits at all times. Pulse and respiratory rates were slightly increased immediately after exercise but returned to their original rate within five minutes in every patient. The mental outlook of the patients in the exercise group also was improved.

The authors believe that the primary cause of post-thoracoplasty deformity was the transection of muscle groups and removal of ribs in the operative area. This caused a disturbance in balance of the vertebral column which resulted in scoliosis. The second and minor portion of the deformity problem was the scapulohumeral. The authors believe that the spinal imbalance must be attacked first. Resistive exercises are used to strengthen and re-educate the contralateral muscle groups as the vertebral column is straightened and tensed by active and passive overcorrection. The scapulohumeral phase of the problem is treated by range of motion exercises, resistive exercises for the Pectoralis minor muscle, and massage of the scar tissue. The team concept is of the utmost importance in the maintenance of patient morale. Since the adoption of this regimen, it has been possible to prevent or minimize postoperative deformity without harmful effect upon the pulmonary lesion. The program described in this article gives an outline of the plan and, by means of diagrammatic drawings, furnishes the technique of selected exercises used during each postoperative phase.

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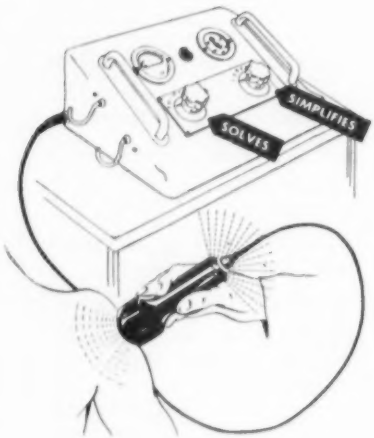

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American Congress of Physical Medicine and Rehabilitation — 31st Annual Session, The Palmer House, Chicago, August 31 through September 4, 1953. Walter J. Zeiter, M.D., Chairman, Convention Committee, 30 North Michigan Ave., Chicago 2.

Chicago Society of Physical Medicine and Rehabilitation — Regular monthly meetings, September through May, every fourth Wednesday. Dr. Joseph Koczur, Secretary-Treasurer, 55 E. Washington St., Chicago.

Latin-American Congress of Physical Medicine — Scheduled for February, 1954. Cassius Lopez de Victoria, M.D., Executive Director, 176 E. 71st St., New York 21, N. Y.

New York Society of Physical Medicine — Monthly meetings held first Wednesday. Madge C. L. McGuinness, M.D., Secretary, 48 E. 62nd St., New York 21, N. Y.

Pennsylvania Academy of Physical Medicine and Rehabilitation—Regular meetings on third Thursday of month, held bi-monthly. Secretary, J. Murl Johnston, M.D., 694 Washington Rd., Mt. Lebanon, Pittsburgh, Pa.

American Occupational Therapy Association —Annual Conference, November 13-20, 1953, Shamrock Hotel, Houston, Texas. Marjorie Fish, OTR, Executive Director, 33 West 42nd Street, New York 18, N. Y.

International

World Congress of the World Confederation for Physical Therapy—London, England, September 7-12, 1953. Secretary, Miss M. J. Neilson, Chartered Society of Physiotherapy, Tavistock House, South, Tavistock Square, London, W.C. 1, England.

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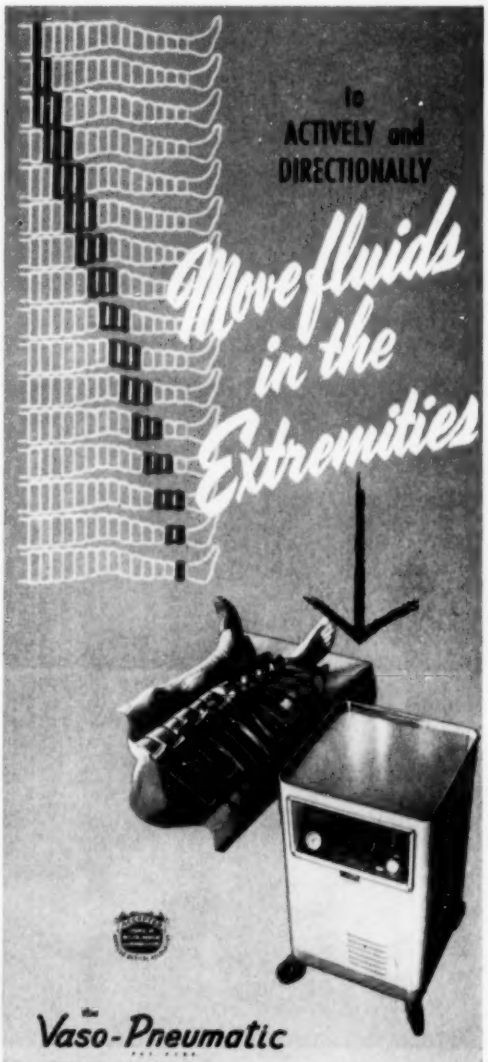

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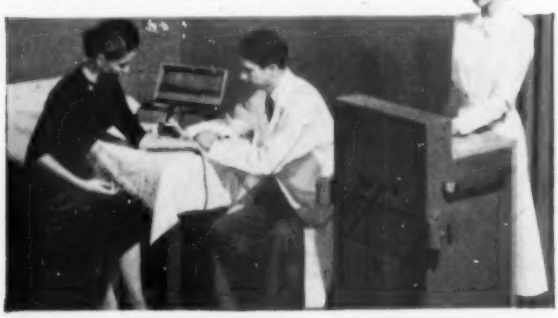

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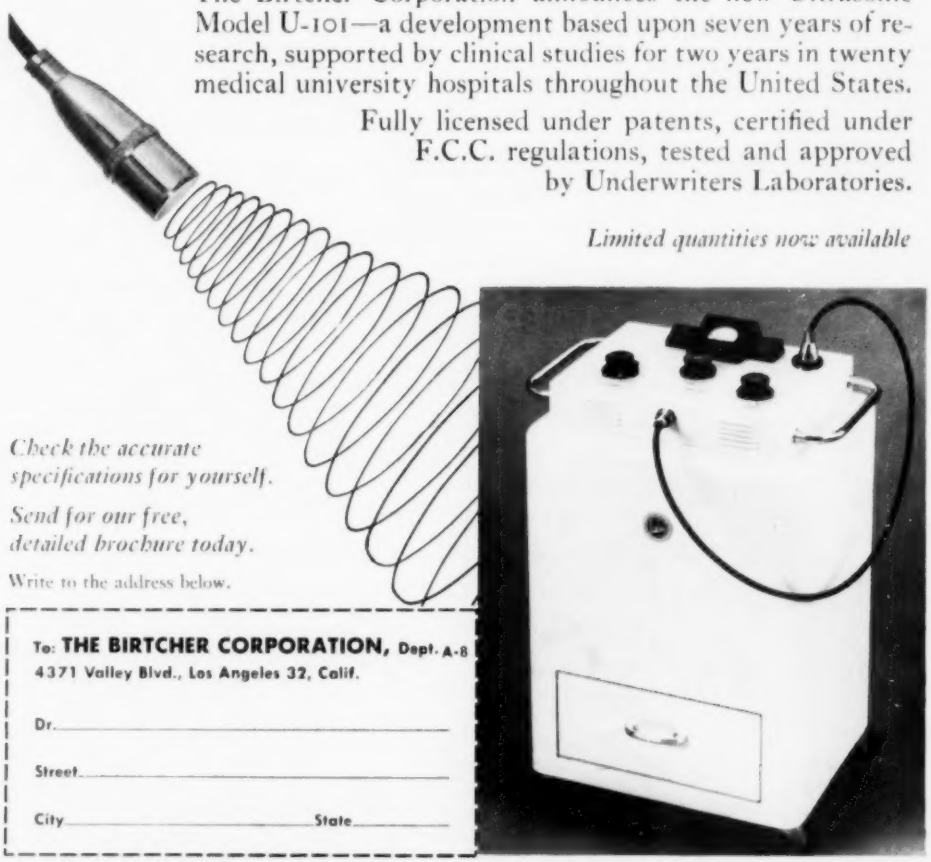

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